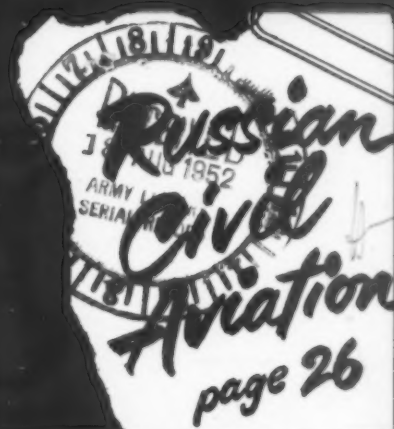


# American Aviation



**AUGUST 18**

1952

Willard L. Landers,  
Vice President of Fair-  
child Engine and Air-  
plane Corp. and Gen-  
eral Manager of Fair-  
child Aircraft Division.  
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*Aeronautical Controls*

# AIRTRENDS

There may be a crackdown on airline safety. CAB is disturbed by alleged failure of lines to correct defects reported after flights. Maintenance could eliminate accidents which have been averaging about one a week, a CAB official thinks. The accidents get little publicity and seldom result in fatalities.

Airlines plan to ask lots of questions about effects of Public Law 534, military construction bill passed by Congress. Air Force projects involve extensive construction at over 30 airline airports. Carriers want to make sure AF doesn't lose sight of effect on civil operations.

Ever-rising transport category certification costs (Convair 340 ran about \$1 million and averaged \$1,000 per flight hour) will lead to efforts to eliminate unnecessary or obsolete requirements at next year's annual review of airworthiness regulations. Aircraft Industries Association is leading the campaign.

Revival of rapid tax write-off program for airlines (see page 21) pleases the plane manufacturers. Several lines that couldn't decide between ordering now or holding off will probably get orders in quickly so they can qualify for five-year amortizations.

Britain's jetliner business is booming. de Havilland reports that contracts for 40 Comets have either been signed or are almost ready for signature. Vickers-Armstrongs has sold 48 Viscount turboprop transports and is currently negotiating sale of another 50.

Engine operating time on Allison turboprops is building up substantially and now approaches a total of 10,000 hours, including flight and test stand time. T-38 and T-40 engines are flying in four planes—Convair P5Y Navy flying boat, Douglas A2D and North American A2J Navy attack bombers, and Allison's Convair Turbo-Liner.

Next year's used aircraft market will be affected by increasing availability of DC-4's. Pan American, Northwest, United, and Air France are expected to have a large number of them for sale in 1953.

CAB's complex investigation of large irregular carriers, which opens September 3, may drag on for two years.

First rough draft of the fiscal 1954 defense budget is scheduled for completion by September 2, with final submission to the Bureau of the Budget slated for November. Early indications are that Defense will ask appropriations on a scale very close to that of the current year.

Although the aircraft industry thinks the long steel strike will not cause any production delays if it receives the quantities of aircraft-quality alloy steel it was promised, a new NPA ruling may change this situation. At the request of the Army and Navy, aircraft-quality steel may now be purchased by other defense producers not involved in plane or missile production.

# The Washington View

## The Buyers Go Home

**T**HE situation is not yet acute, but the Air Force is facing a new procurement problem just at a time when it is getting ready to spend more money than in any year since the war. Pentagon officials haven't discussed the subject much, but many contracting officers in Washington, at Air Materiel Command Headquarters in Dayton, and in other AMC purchasing centers are getting out of service, leaving relatively inexperienced men to handle the complex job of buying for the Air Force.

After the Korean war started, reservists with the title of "production procurement officers," "industrial planning officers," and "production procurement staff officers," many of whom had done similar work during World War II, were involuntarily called back into service, generally for 21 months. Others volunteered for a prescribed period. The time has ended for many in both groups, and they have decided to shed USAF blue in favor of mufti.

Unless their replacements learn quickly, the aircraft industry will find that there will be even more delays in obtaining Air Force contracts.

## No Pilot to Guide It

Aeronautical scientists have been contending for several years that the newest aircraft being built for the military have just about reached the limit of man's ability to take it. Aero medical men, especially, have stated that the extremes of speed and altitude for which new fighters can now be designed would be too much for the average USAF pilot, healthy though he might be.

The Air Force, realizing the significance of the situation, decided that the day of the non-piloted airplane was getting closer. First of such craft to be developed was the Martin B-61 Matador bomber. But the USAF has now gone even further—two new supersonic interceptors are being built with no room for a pilot.

One is a ground-to-air guided missile being built by Boeing and known as the XF-99 Bowmark. This craft, after being fired from the ground, will locate an enemy bomber through electronic devices, lock onto it, track it, and crash into it, eliminating both planes.

The other is the Hughes XF-98 Falcon, which performs the same function as the Bowmark, differing only in that it is launched from a mother plane rather than from the ground. One Falcon has already been test-fired from a North American DB-25 bomber (the "D" designation indicates a director, or mother plane for the launching of guided missiles). The Bowmark has not yet been delivered to the Air Force by Boeing.

## The B-36 Bows Out

Even though the Air Force has decided that the last order for the Consolidated Vultee B-36 10-engine bomber has been placed and that the Boeing B-52 will become the long range intercontinental bomber, it is now definite that Convair will hold on to the Fort Worth plant where the B-36 is being built.

USAF Under Secretary Roswell L. Gilpatric has confirmed that a new Convair plane will go into production at the Texas facility (which is owned by the Air Force) after B-36 production and all modification work on the same plant end there. Current B-36 orders will carry output well into 1954 and modifications will take probably another year, meaning that production of the new plane will probably begin in 1956.

The decision to emphasize the B-52, incidentally, means that the YB-60, swept-wing, all-jet version of the B-36, will not be ordered into production, even though such an idea had been under consideration. The limited money which the USAF has at its disposal apparently necessitated concentration on one long-range bomber.

Nothing has been said about which Convair plane will ultimately be built at Fort Worth but it will not be the YB-60. Convair has been working on a completely new long-range bomber of advanced design. The late date for its scheduled start of production indicates it may be supersonic, since the Air Force has been considering several such designs.

## Brickbats and Cuecaps: Dead

The perennial bugaboo of aircraft production, inadequacy of machine tools, must be nearing its end. In the first place, the National Production Authority recently gave tool builders permission to again take orders from manufacturers of consumer durable goods.

Furthermore, while no announcement has or probably will be made, civilian and military mobilization officials are getting ready to end brickbat and cuecap priorities. When the three armed services finally agreed on the fifteen items which they wanted produced in the biggest hurry, those items (including the Boeing B-52, the North American F-86 and the GE J-47 and Pratt & Whitney J-57 engines) were designated with the "brickbat" symbol.

Machine tool builders were informed that orders by the producers of brickbat items were to receive top priority, and those with the "cuecap" designation ranked second. But the tooling-up program has apparently progressed enough for these categories that the two priorities are being eliminated as such.

... Robert M. Loebelson



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# American Aviation

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August 18, 1952 Vol. 16, No. 6



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ERIC BRAMLEY

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## Cover Photo

WILLARD L. LANDERS, 38, is a vice president of Fairchild Engine and Airplane Corp. and general manager of Fairchild Aircraft Division, manufacturer of the familiar C-119 "Flying Boxcar," a new model of which, the C-119H, made its formal debut recently. Landers is an "up-through-the-ranks" type of aircraft executive, having started in the business 19 years ago as a "grease monkey" with Aero Crop Dusters, Mines Field, Calif. From there he moved to Northrop Aircraft, Inc., (in 1935) as a shop worker in the experimental section.

He started moving up the ladder with North American Aviation in 1936, when he organized the assembly operation for the Harvard trainer in England, later in South Africa. In 1940 he moved to NAA's Dallas plant as works manager, stayed there until he joined Fairchild in 1944 in the same capacity. He was appointed assistant general manager in 1949 and general manager last year. For further news of Fairchild activities see page 19.

## Other Publications

**American Aviation Daily** (including International Aviation): Published daily except Saturdays, Sundays and holidays. Subscriptions: \$18 one month; \$200 one year. Keith Saunders, managing editor.

**American Aviation Directory**: Published twice a year, spring and fall. Single copy, \$7.50. Marion E. Grambow, managing editor.

**Official Airline Guide**: Monthly publication of airline schedules and fares. Subscriptions: U. S. A. and countries belonging to the Pan American Postal Union, including Spain and the Philippines, \$11.00 one year, Canada, \$11.50. All other countries, \$12.50. Published from editorial offices at 139 North Clark St., Chicago 2, Ill. Central 6-5804. C. N. Johnson, managing editor.

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# Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

## THE AVGAS SHORTAGE

To the Editor:

Thank you for the reprints of your article: "Serious Avgas Shortage Threatens" which appeared in your issue of July 21. May I compliment you on this article which gives an excellent and factual insight into the present aviation gasoline supply situation. It also points up to the likelihood that this situation will become increasingly serious over the next few years unless definite steps are taken to bring about a considerable increase in manufacturing capacity for aviation gasoline, both here and abroad.

In your article you stated that U. S. refineries are in the position of supplying about 50% of world-wide aviation fuel requirements. According to this writer's information, if "world-wide" means all countries of the world including the United States (but excluding U. S. S. R. and satellites), then U. S. refineries are supplying somewhere between 80% and 85% of world-wide high octane aviation gasoline requirements. On the other hand, if "worldwide" refers to total aviation fuel requirements outside the United States, then refineries within the U. S. are still supplying more than 50% of that demand.

Due to a number of reasons, there is surprisingly little manufacture of aviation gasoline outside of the United States. I think that the absence of aviation gasoline manufacturing facilities abroad and also the reluctance to increase manufacturing facilities for this product, even in the United States, are mainly explained by the following reasons:

1. The excessive optimism which has prevailed in respect to the early advent of jet transports using kerosene-type fuel easily manufactured at any refinery with existing equipment. This has led to the erroneous belief that aviation gasoline would shortly become a drug on the market. Regardless of what happens in the jet field, the demand for aviation gasoline is still increasing and will continue to do so for some years before reaching a plateau.
2. The fact that high octane aviation gasoline facilities, which include alkylation, are complicated and expensive, and in terms of the investment required do not, at present refinery selling prices, give as good a return as is obtained by an equal investment in plants producing other products such as motor fuel, heating and diesel oils, petrochemicals, etc.

In your article you mentioned that S. refiners who have contemplated

the installation of any alkylation capacity feel that there is not adequate time in which to utilize these facilities before the demand slackens. As indicated above, this is based on false assumptions, because I believe that the demand for high octane aviation gasoline will continue to increase for several years and, therefore, provide adequate time to amortize any new facilities which are installed now.

A survey which we made three months ago indicated that there are over 650 piston-engined airplanes, mostly four-engined types, scheduled for delivery from four U. S. manufacturers to U. S. and foreign airlines between now and mid-1954. Since this survey was made, a number of additional orders, mostly for Super Constellations and Douglas DC-7's, have been reported. It is reasonable to assume that all these aircraft will continue in operation somewhere for at least another fifteen years to come.

Our studies have indicated that there is a good relationship between the consumption of aviation gasoline by airlines and two statistical factors, namely, the amount of installed horsepower in use and the number of passenger-miles flown. Although the relationship is subject to some variation, depending on the type of operation and other factors, it can be said as a rough approximation that each installed horsepower (based on take-off rating) will consume nearly 100 gallons per annum, while roughly one gallon is consumed per 25 passenger-miles.

According to data which has been published in AMERICAN AVIATION, the passenger-miles flown by scheduled airlines are now increasing at the rate of between 20% and 25% per annum, while the amount of installed horsepower of

piston-engined commercial transports is also increasing by a substantial percentage per year, although apparently not quite to the same extent. The attached chart (see below) indicates the growth of installed horsepower of piston-engined commercial aircraft in world-wide service.

I feel that the publication of your article has performed a service by bringing to the attention of aviation interests this growingly serious aviation gasoline supply situation. As you state, no immediate solution appears in sight, although by focusing attention on the problem it may be expected that steps will be taken and inducements provided to encourage the larger scale production of high octane gasolines which, despite all the enthusiasm over the advent of the jet age, are still, and likely to remain, the backbone of air transportation for many years to come.

A. R. OGSTON

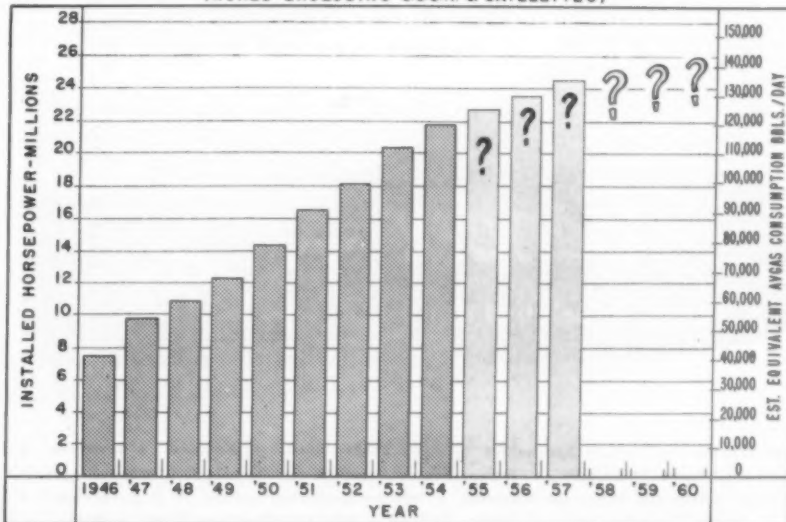
Esso Export Corporation  
New York 20, N. Y.

To the Editor:

In the July 21 issue of AMERICAN AVIATION appears a timely article entitled "Serious Avgas Shortage Threatens." As a whole it reports the situation accurately, but there are some points which are not accurate and others which seem to need clarification or accent. For your possible interest I submit the following comments.

The initial premise, that there will not be enough avgas to "go around for civil operations" is correct, but too restrictive, since it implies a compulsion upon the petroleum industry to supply all that Government requests. Under present conditions we are still operating in a free economy and it is not now the policy of Government to demand first

THE GROWTH OF INSTALLED HORSEPOWER OF PISTON ENGINED COMMERCIAL AIR TRANSPORT (WORLD EXCLUDING U.S.S.R. & SATELLITES)





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cuts of the pie until its own appetite has been satisfied. The shortage impinges alike upon both Government and civil demand, with economic forces deciding to a large extent just where the available gallon shall go. Under these conditions we would not expect "allocation" to become a practice, rather that Petroleum Administration for Defense will confine itself to the task of stimulating the petroleum industry into manufacturing the most possible avgas under costs of manufacture ceilings acceptable to it at the times of decision.

Your article correctly states, but perhaps should accent the fact, that beyond certain natural limits additional volumes from a given manufacturer cause higher and higher costs. But it does not seem to make clear the fact that Government is buying most of its avgas at normal price levels which have not advanced in years. The product purchased by Government at "Up to 20 plus cents per gallon" was manufactured at the instigation of P.A.D. and sold under special contracts with the blessing of Office of Price Stabilization. The high cost gasoline bought by our Government, while important as to volume, has been a relatively small percent of the total purchased.

As to the closing of the Abadan refinery forcing the U. S. refineries into supplying 50% of the avgas world-wide demand, I can't agree. Speaking for the world outside of the Iron Curtain, the Western Hemisphere supplied upward of 85% of the demand before the closing of Abadan, which only resulted in increasing our load by some 18,000 barrels per day and the percentage to above 90%. Since the U. S. supplies about three quarters of the Western Hemisphere total, the U. S. supply of 65/70% of world demand is indicated.

### Industry Forecasts

In one part of your article you speak of industry forecasts showing high octane fuel requirements "tapering off in the next few years as jet fuel usage increases." If there be such forecasts I haven't seen them and would not subscribe to them. The future demand by airlines seems clearly to be primarily for piston fuel for many years to come, and as your article correctly points out, in ever increasing volumes. It is likewise obvious that the piston-engined component of the Government air arm is continuing to expand and while it may be expected to plateau in future years, it should be a long time indeed before it falls below today's level of demand for avgas. The growing use of jets, while presenting a supply problem of a different and simpler nature, will not diminish the demand for avgas except that the demand would have been even greater had jets not come into the picture.

One final point, and perhaps a delicate one, could be made, namely that under conditions of short supply the airlines are in competition with governments for the available fuel. Short of Force Majeure their success or failure to buy what they need will be determined by price, not necessarily the price they are willing to pay but rather the price O.P.S. will let them pay. Today most airline prices have established O.P.S. ceilings for their "class of buyer," at levels subnormal to other markets. Obviously this fact tends to channel

AMERICAN AVIATION

sales into the more profitable non-airline markets. Which is only another way of pointing out that the subnormal prices enjoyed by airlines over many years past are a prime factor in causing their apparent fuel shortage in the years immediately ahead.

My purpose in writing this letter is only in an effort to cast light on a cloudy subject. I am confident our problems can be solved if we of the aviation and petroleum industries are but permitted to work them out in a free economy in the good old American way.

Congratulations on your good work—and best personal regards.

R. C. OERTEL

Esso Standard Oil Company  
New York 19, N. Y.

(Reader Oertel may be interested in the following remarks on the situation by Col. W. J. Worcester, aviation adviser to the Petroleum Administration for Defense: "There is not enough [avgas] now and it is questionable at this time whether there will be enough in the future . . .

" . . . total requirements are estimated to rise through 1959. We believe that military requirements will rise continuously until sometime in 1957 at which time we expect them to level off and then slowly start to decrease as jet aircraft come more and more into use. We expect commercial requirements to increase through 1959 before leveling off. Putting the two—military and commercial—together, we expect peacetime avgas demand to peak in 1959, then to level off and start a gradual decrease."—Ed.)

## BACKGROUND ON BACKGROUND MUSIC

To the Editor:

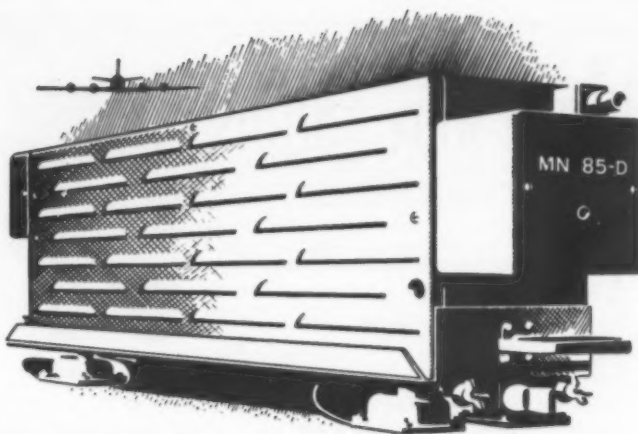
Your recent article in AMERICAN AVIATION about music in the cabins of passenger planes was indeed very interesting to the MUZAK Corporation.

For several years we have been engaged in furnishing Music-by-MUZAK to trains, ships and one airline and have thus gained an opportunity for considerable research and actual experience in this special music service, which we call Travel MUZAK. I would therefore like to discuss the salient facts about the type of music which is both acceptable to aircraft passengers and suitable for transmission to aircraft.

To properly evaluate what determines the type of music most suitable we find there are two important factors. First, the subjective factor of favorable acceptance by the passengers, and secondly, the physical condition of the premises in which the music is played.

In analyzing the first factor, we find that aircraft passengers do various things during flight. They either relax, read, sightsee, or eat. Any music played must therefore be what we term "background music," which will create a restful atmosphere, and can only be "heard" and not "listened to."

The second factor which will determine the type of music to be played is that of the physical space and the acoustic condition of the aircraft cabin. The noise level in all aircraft cabins is considerable and must be overcome by the tonal quality of the music. In order to minimize the effect of the ambient noise, the cabin has been dampened acoustically to a high degree, resulting in very little reverberation. These conditions are such as to necessitate extremely high demands upon the tonal quality of music selected.



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# Meet Your Editors



Haggerty

**T**HIS solemn-looking gentleman, busy looking down at his trusty typewriter, is AMERICAN AVIATION's Military Editor, James Joseph Haggerty, Jr., . . . a hulking six-footer who bears a grim but determined appearance. Don't let that fool you for a moment, because underneath it all, Jim's a real soft-hearted fellow with a touch of the old blarney to boot.

Jim Haggerty rightly earned his title as our expert on military aviation affairs, based on six long and lean years with Uncle Sam's air force, getting first-hand experience with all types of planes and future models. This, with an earlier background in the newspaper business, gave him added know-how for his position. Of course being an old-time, long-time subscriber to AMERICAN AVIATION before he came with us helped him out quite a bit as well.

You have read many of Jim's articles these past four years on Air Force plans, progress of the AF (or lack of it, according to Jim), and his regular page on military aviation.

This material has stirred many a red-hot controversy in aviation industry circles, not only among our readers, but within the Air Force brass, Congress, and among other aviation leaders who have argued his theses back and forth. All this pleases Jim, because it adds up to greater reader interest all around.

\* \* \*

Jim was born in Orange, New Jersey, 32 years ago. After securing his education, he played some semi-pro basketball and worked for several years for a local newspaper. He also managed to sell a few detective and western yarns to the popular "pulp" magazines.

In '42, Jim went to war as a gunner on a 105 mm. howitzer crew. His instincts told him he'd be better off in aviation. To his great surprise the Air Force agreed and started to teach him to be a pilot. He made an excellent flyer with one exception: he couldn't land. That's how Jim became a navigator assigned to a bombing group of Consolidated B-24's, flying 52 missions with the famed 15th AF in Italy. Seven of these missions were devoted to plastering Ploesti, one of the toughest targets in Europe.

Then Jim came back to the States, winding up as an Air Force captain in the Pentagon where he served on a public relations desk for two years. During this time, he had the ideal opportunity of becoming intimately acquainted with the USAF's new airplane types.

One day, while scanning his recently arrived copy of AMERICAN AVIATION, Jim got the idea that we needed a good military editor. He parted company with the service in 1948 and came with us in April, 1948.

Today Jim manages to find some time to pursue his hobby—flying. Yes, he finally managed to learn to land a plane as a full fledged pilot! Jim also enjoys attending regular meetings of such organizations as the Aero Club of Washington, NAA, and the Aviation Writers Association of which he is past president.

To more clearly define "background music" it is necessary to establish the quality of music per se, or what we may term "entertainment music." All music originally is composed so that it will hold its listener's rapt attention whether played in the concert hall, through the radio or the TV set in your home. The composer therefore introduces into the compositions some musical "mechanicals" which give his work of art the highest dramatic form and create as much listener attention as possible. The most common device is volume variation; the sudden rise in tonal power by means of crescendos or sforzandos and the decrease of such peaks in power by diminuendos. This technique is very successful in making the music highly dramatic and making a forceful impact upon the listener.

Another "mechanical" is the change of key" which will give the music various moods. Such modulations from one key to another are indeed very beautiful and will heighten the dramatic effect of the composition. The very makeup of the composition with its introduction, melodic outline, intermezzo, re-introduction of the melody and final conclusion will make the music very "listenable." Intricate scoring with the melody enhanced by counter melody and counterpoint will create for the more sophisticated listener a charm all its own.

## Instrument Choice

Having redesigned "entertainment music" to this background music form, extreme caution must be exercised in the choice of instruments, eliminating the use of open brass and other instruments which will make the music of too robust and raucous a quality. It is obvious that in order to create true background music, such music must be specially arranged and recorded, because commercial phonograph records or radio transcriptions are pure "entertainment music," each composition vying with the other to attain the highest degree of attention.

Having the individual musical selections "tailor made" in the above manner, the next very important step is creating suitable programs. The success of programming is in direct ratio to the experience and artistry of the program director and his understanding of all the existing problems. Furthermore, constant research is necessary for the advancement of the programming art.

Taking into consideration the second factor, namely, the physical condition of the cabin, we find that the noise level presents a real problem. Fortunately, the quality of the noise is more important than its intensity. We find that the quality of the noise is in the lower frequency range. The music must therefore have a much more extended range than that of the noise, and must extend above the noise frequencies, so that the music will "go around" the noise instead of pushing through it. It may then be heard distinctly at low volume level by reason of its high fidelity rather than by its force.

Due to the acoustic dampening of the cabin there is a high absorption of sound. The music must therefore have a wealth of rich harmonics in its treble to compensate for the higher loss of upper frequencies of the music in relation to the lower frequencies caused by



absorption. This can readily be accomplished by the use of string instruments which are rich in upper harmonics. The use of instruments which are in the lower registers and coincide with the frequency range of the noise should be avoided because they will be masked by the noise. Solo passages using piano, cello, low register brass and woodwinds should never be used. The most suitable music is bright and of a cohesive ensemble type.

In summarizing, we can arrive very readily at the "specifications" of music which will be ideal for aircraft use, and the characteristics are as follows:

- The music must be specially arranged and recorded.
- The music should have a minimum of volume variation.
- All changes of key should be avoided.
- The music should emphasize a simple melodic outline with appropriate accompaniment.
- Careful choice in instrumentation is necessary to avoid raucousness.
- The music should be bright with rich harmonics in the treble.
- The music should be recorded with the highest fidelity with a frequency range from 50 to 8,000 cycles.
- Solo passages of single instruments should never be used.

Based upon the experience in furnishing music programs for trains where the general physical conditions and noise levels are rather similar to those in aircraft cabins, we have found that the above type of music is extremely successful and favorably accepted by the passengers. We are sure that this type of music will be just as successful in aircraft.

However, having the right kind of music is only one step. The equipment for transmittal of the music must be designed and installed with full consideration of the physical conditions which impose certain problems. Fortunately, the new technique of recording on magnetic tape will make it possible to solve these problems. There is now under development specially designed airborne type tape reproducers which will be on the market very soon.

N. W. HILLSTROM  
National Sales Manager  
Muzak Corporation  
New York 3, N. Y.

## HE WANTS IT

To the Editor:

In your July 7 issue, I was very much interested in the article entitled, "Music: Nobody Seemed to Want It."

As a passenger using the airlines, I have been very favorably inclined towards National Airlines' use of a tape recorder in their DC-6's.

The level of the music played is not sufficiently high to keep one from sleeping or carrying on a normal conversation. It is pleasant and restful. I have not been able to understand why other operators have not provided such a service.

E. S. GALLAGHER  
Manager of Sales, Aviation Divisions  
Apparatus Dept.  
General Electric Company  
Schenectady, N. Y.

## MORE ON COMET COSTS

The following was recently circulated in one of the largest aircraft companies as an inter-office memo:

We have checked the direct operating costs of the Comet II and have compared our figures with those which appeared in the June 9 issue of AMERICAN AVIATION. We have used the 1949 ATA method to get all the cost figures except for the turbine engine maintenance cost, which was obtained from our recent report. In the following table we have included the breakdown which appeared in AMERICAN AVIATION and our own figures for the Comet II and the DC-6B.

### COST PER HOUR

	COMET II (AM. AVIA.)	COMET II (1949 ATA)	DC-6B (1949 ATA)
Obsolescence .....	\$ 57.96	\$ 68.11	\$ 50.24
Insurance .....	30.52 (a)	18.18 (a)	14.45
Airframe Maintenance .....	48.16 (b)	21.36 (b)	22.03
Engine Maintenance .....	80.08 (b)	30.88 (b)	22.20
Fuel and Oil .....	174.44 (c)	174.44 (c)	99.00
Crew .....	19.04 (d)	57.92 (d)	51.25
Landing Fees .....	11.48 (e)	.....	.....
<b>Total Cost Per Hour</b>	<b>\$21.68</b>	<b>370.89</b>	<b>\$259.17</b>

### Notes:

(a) Several factors in the SBAC method make the Insurance costs higher, one of the most important of which is a more conservative assumption for utilization.

The payloads would be approximately as indicated in the following tabulation:

	COMET II	DC-6B
Number of passengers .....	44	52
Passengers .....	7,260	8,580
Baggage .....	2,900	3,430
Cargo .....	2,140	3,240
<b>Total Payload</b> .....	<b>12,300</b>	<b>15,250</b>

On the basis of these payloads we get about the same cost per ton-mile for the Comet II as that obtained by de Havilland but the DC-6B ton-mile cost is considerably lower than that obtained by them.

The specific figures follow:

	Comet II	DC-6B
Cost per mile .....	84.4¢	88.5¢
Cost per ton-mile .....	13.7¢	11.6¢
Cost per seat-mile .....	1.92¢	1.70¢

It seems to be indicated that the Comet costs will improve and perhaps the Mark III version, with a larger fuselage, will have operating costs that compare favorably with those of the best present-day airline transports.

(b) The SBAC method includes overhead in Airframe and Engine Maintenance, which is not included in the 1949 ATA method. Further, the de Havilland Engine Maintenance figures are based on present experience, while our figures are based on turbine engine operation in the years from 1958 to 1968.

(c) The de Havilland Fuel and Oil figures are the same as ours because we have assumed the same costs per gallon, and the same fuel consumption.

(d) The SBAC Crew costs are considered to be unreasonably low, and they specified fewer crew members than we would.

(e) The Civil Aeronautics Board considers Landing Fees as a part of indirect costs and therefore they are not covered by the 1949 ATA formula.

(f) Other assumptions made which are not mentioned above include the following:

	Comet II	DC-6B
Airplane Price .....	\$1,442,000	\$1,150,000
Fuel Cost per US Gal .....	17½¢	21½¢

The above Comet II and DC-6B costs based on the 1949 ATA formula are considered to be comparable. We have assumed a five-man flight crew including a pilot, two co-pilots, and two flight engineers on both airplanes for the trans-Atlantic flight so that relief crew quarters will be needed. On his basis, the Comet's passenger seats will total 44. A comparable DC-6B interior would hold at least 52 passengers.

# Editorial

## We're Taking A Drubbing

**W**HETHER we like it or not, the British are giving the U. S. a drubbing in jet transport. We've done our best to ignore their inroads on the prized world market, we've smugly acknowledged their valiant pioneering efforts, and we've thought up every sound, logical reason why we aren't preparing to have jet transports flying until 1958.

But the bald truth is that the British are forcing the U. S. to take up the challenge—or lose both air traffic on important world routes and sales in important world markets. It is no longer a matter of rationalizing a decision for the future—the issue is already joined. The British haven't waited for us to make up our minds.

The U. S. attitude toward the development of the British jet Comet transport is very much like the attitude of the farmer whose land had been flooded frequently, but the water had never come close to his house and barns. A new flood came and the farmer sat on his front porch with full confidence, but the water kept coming closer and closer to the porch. Even as the water lapped at the front steps the farmer still insisted that it just couldn't be so because it had never happened before.

The British drive for leadership of the vital world transport market is not yet conclusive. It still isn't absolutely certain. But it's moving up most awfully close. The latest sale of Comets to LAV, the Venezuelan national airline, is a major victory and will put the Comet on a route straight through the western hemisphere from New York to Buenos Aires in territory which the U. S. considers to be its own.

### Very Un-British

The U. S. is caught short for the very simple reason that the British have been very un-British in developing and producing and selling the jet Comet. The U. S. reckoned without the de Havilland Aircraft Co., which is an anomaly in the British aircraft industry. By all past experience the British should have started the Comet project with a great roll of drums and tooting of trumpets, then fiddled and fussed around, made vast promises which couldn't be fulfilled, and then permitted the U. S. industry to walk in and capture the market with volume sales and output. The trouble with this idea is that de Havilland is a first rate outfit which evidently forgot to read the rules of the British Guide to Muddling.

While the U. S. talks vaguely of producing jet transports sometime between 1958 and 1960, the British have been building, flying, and taking orders. Somebody forgot to tell de Havilland to wait until we're ready. It is now clear that we can't just push a button and produce a lot of jet transports and catch

up in a few years. The lead time has become serious for the future of the U. S. jet market.

When Comet I appeared, the American designers and operators were dutifully critical. Comet I is not an economical airplane to operate. It has plenty of bugs. If de Havilland had operated in British tradition it would have fussed over Comet I for so long that it would have missed the world market. But de Havilland continued to build Comet I's and has sold the lot. Now it is building Comet II, which will also have imperfections, but it is selling this lot, too. Next will be Comet III. And then, by the time we are just testing our first models, de Havilland expects to be producing Comet IV, which will be a tried and tested production airplane combining all of the lessons and development of the earlier models.

### On A Spot

The U. S. is on a spot. Its aircraft manufacturers are waiting for the domestic airlines to place orders sufficiently firm to warrant an outlay of a great deal of money for prototypes and tooling. The domestic operators have had sound reasons for wanting to wait. But the U. S. international airlines are going to have to compete in all parts of the world against British Comets—over the Atlantic, over the Pacific, in Europe, South America, Africa, and Asia. Our domestic airlines are not much concerned, yet—but the U. S. should be.

But it isn't just the competition for traffic that is so vital at this point. It's the inroads the British have made on sales in the world market. In these days when a new transport costs \$2,000,000 and more, sales to strategically located airlines are vitally important. The market is not too big at best and profit margins are not only slim but are based on grabbing a big percentage of the market. The U. S. is losing some important sales. The Comet has penetrated to Japan, France, South America, and other places. If we had the product for sale, the U. S. would have no worries. But 1958 is a long way off.

Why have the British been so successful? One important reason is that the British government, which works closely with its manufacturing industry, made it a policy at the end of World War II to concentrate on jet transport. This policy has become almost a holy crusade—a desperate, consecrated effort to capture world leadership. Another reason is that de Havilland is tops by a wide margin in the British industry. Still another reason is that Britain has lent every diplomatic aid possible to help push Comet sales. A British ambassador is an airplane salesman. Selling British jets is a national crusade. It has cost the British a lot of money—but the gamble has another six or eight years to pay off.

Why are we lagging so far behind? There are a number of reasons. The biggest customers of U. S. manufacturers, the domestic airlines, have set forth sound rational reasons why they don't want to rush



## Continuous Progress for 35 Years—

A milestone in aviation history was passed on June 1, 1952. That date marked the 35th anniversary of the founding of Chance Vought Aircraft by the late Chance Milton Vought, one of aviation's most brilliant engineers.

The record of Chance Vought's "firsts" is both long and impressive. The Navy's first aircraft carrier, the U. S. S. Langley, was equipped exclusively with Vought VE-9s. The Vought UO-1 was the first to prove the practicability of catapulting planes from battleships and cruisers; a Vought plane was the first folding-wing monoplane; and the F4U before World War II, was the first 400-mile-an-hour fighter in the country. The history of Naval aviation is filled with countless examples of Vought pioneering . . . pioneering which has been important in helping to make the Navy's Air Arm the world's best.

Today, Chance Vought is producing two outstanding planes for the Navy. One is the AU-1 Corsair, specially designed for close air support. Although extensively modified, it basically follows the original F4U Corsair design first laid down in 1939—a dramatic instance of far-sighted designing.

The other Chance Vought plane in production for the Navy is the sleek looking F7U-3 Cutlass, a tailless, swept-wing fighter, powered by twin jet engines and afterburners. It was designed to out-fly and out-fight any other carrier-based aircraft in the world.

Solidly backed by 35 years of proved experience, Chance Vought engineers are continuing to pioneer. Design and development are working toward the most advanced piloted and pilotless aircraft of tomorrow.

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into jet. Engines aren't ready for easy maintenance. Present jet operating costs are high. Traffic control and airports aren't ready. No new financing of equipment can be undertaken until present new fleets are depreciated. Manufacturers can't spend money until orders are in sight. There is no national policy to encourage or help either operators or manufacturers. The military services have frowned on jet transport. We have no Ministry of Civil Aviation. A U. S. ambassador would as soon be caught dead as aid a U. S. airplane sale.

### Thousands of Blueprints

So here we are, with blueprints by the thousands, with all of the reasons in the world for not rushing into jet transport, while the Comet is doing the impossible. The Comet should not be flying in scheduled service today. The Comet should not be sold to Venezuela or Japan or Canadian Pacific or Air France. It can't be produced in quantity. But the Comet is all of these things. And the Comet carried the Queen of England on an afternoon's tour of Europe as a demonstration to the world of British faith in their own product and as an official stamp of approval.

### Blitz Not Over

The blitz is not yet over by any means. The British would move heaven and earth to sell Comets to a U. S. carrier. This would be worth the loss of an empire; it would be just compensation for losing the American colonies. Such a sale is not impossible, for de Havilland has cunningly forced the issue with sales to competitive routes and U. S. jets are six years away. British jet transport leadership is no longer a remote possibility. It's coming up too close for comfort.

The solution for the U. S. is not easy. Even if we began "all out" today, we'd have a difficult time shortening the British lead. We have no government policy of assistance, although prototype bills have been discussed and then dropped in Congress. We have three or four manufacturers with plans for building jet transports, but a \$30 or \$40 million venture without firm orders is a risk no company is able to undertake. Yet the British challenge is no longer academic. It is very real.

... WAYNE W. PARRISH.

AMERICAN AVIATION

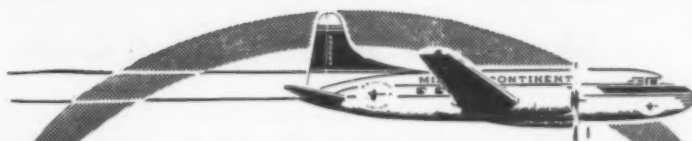


## When & Where

- Aug. 28-30—National Flying Farmers Convention, Alabama Polytechnic Institute, Auburn, Ala.
- Aug. 28-30—National Aeronautic Association, Annual Meeting, Fort Shelby Hotel, Detroit.
- Aug. 28-31—Air Force Association, Annual Convention, Detroit.
- Aug. 30-Sept. 1—5th Annual Intl. Aviation Exposition, sponsored by Aero Club of Michigan, Detroit-Wayne Major Airport.
- Sept. 1-5—1952 International Symposium on Combustion, Mass. Institute of Technology, Cambridge, Mass.
- Sept. 4—Centennial of Engineering Banquet, Hotel Knickerbocker, Chicago.
- Sept. 5—National Conference on Industrial Hydraulics, Aircraft Session, Hotel Sherman, Chicago, sponsored by Illinois Inst. of Technology.
- Sept. 8-10—3rd National Standardization Conference, sponsored by American Standards Assn., Museum of Science & Industry, Chicago.
- Sept. 8-12—Instrument Society of America, 6th National Meeting, Cleveland, Ohio.
- Sept. 23-25—Air Transport Association, Engineering & Maintenance Conference, Saxony Hotel, Miami Beach, Fla.
- Sept. 29-Oct. 1—National Electronics Conference, Sheraton Hotel, Chicago.
- Sept. 30-Oct. 2—Aircraft Spark Plug & Ignition Conference, Champion Spark Plug Company, Toledo, Ohio.

### International

- Aug. 19—ICAO, Aeronautical Information Services (AIS), 1st Session, Montreal.
- Aug. 20-28—8th Intl. Congress on Theoretical & Applied Mechanics, Istanbul.
- Sept. 1-7—Society of British Aircraft Constructors, Annual Display, Farnborough, England.
- Sept. 15-19—IATA, Eighth Annual General Meeting, Geneva.
- Sept. 16—ICAO, Statistics Division (STA), 2nd Session, Montreal.
- Sept. 19—Conference of the Revision of Rome Convention (under auspices of ICAO), Rome.



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## Skyrocket Speed Record Only the Beginning

**T**HE RECENT DISCLOSURE that the Navy's Douglas D-588-II Skyrocket research plane had attained a top speed of 1,238 miles per hour seems to have caused considerable excitement among the lay public, but those more intimately connected with the high speed flight research program at Edwards Air Force Base, Calif., accepted it with a rather blasé shrug of the shoulders. To them the speed represents just one more notch of progress in the joint USAF-Navy-National Advisory Committee for Aeronautics research program, and not by any means the ultimate one.

Skyrocket pilot Bill Bridgeman of Douglas Aircraft Co. indicated in a press conference after the speed disclosure that he had not had the throttle wide open on his record flight. Nonetheless, it would appear that the Skyrocket, with an estimated design top speed of about 1,300 mph, has about reached its speed limit. But it is not by any means the limit of the high speed research program. Lost in the excitement about the Skyrocket's achievement was the fact that there are three more planes in the program with considerably higher design speeds. One of them is built and almost ready for flight; another is completed airframe-wise and needs only completion of its power plant; the third is nearing completion. The planes are:

- **The Bell X-1A**, a new version of the X-1 which first topped the speed of sound. Its theoretical design speed is 1,700 mph, although the airframe design is identical to that of the original X-1 which did not quite reach 1,000 mph.

In the original version, the X-1's rocket power plant employed a pressure system for forcing the fuel (liquid oxygen and alcohol) into the burners. This system limited the endurance of the Reaction Motors rocket power plant to two and a half minutes at full 6,000 pounds thrust and established a top design speed of 1,000 mph.

### 1.7 Minutes Longer

The major change in the X-1A is the substitution of a specially designed turbo pump to force the fuel into the burner chambers, a system which will permit greater endurance (4.2 minutes at full thrust). The extra 1.7 minutes of power endurance will enable the X-1A to pick up much greater momentum, hence the higher design speed.

Since rocket endurance and not airframe design was the limiting factor in the X-1's performance, and since the X-1 came close to its design speed, the X-1A should be able to approach the original 1,700 mph top speed of the design. The plane is completed and waiting at Edwards AFB for the start of its flight test program.

- **The Bell X-2**, successor to the X-1. It is larger and heavier than the X-1 and employs swept wings where the X-1 is a straight-wing design. Most novel feature is the fact that it is constructed of stainless steel, because of the high friction temperatures expected.

The X-2 is now more than three years behind schedule, for two major reasons: the necessity for machining large assemblies out of solid stainless steel and the development of an entirely new rocket power plant, the Curtiss-Wright XLR-25, which will have more thrust than the X-1's engine. The difficulty in developing the engine stemmed from the fact that it had to have a

throttle for power regulation, something never before tried in a rocket power plant. In the X-1, power was regulated by firing one, two, three, or all four chambers, each of which produced 1,500 pounds thrust. Thus, the pilot could obtain 1,500 or 3,000 pounds thrust, but not 2,000 pounds.

The X-2 is now at Edwards AFB and will probably be put through a series of glide tests while it is waiting for the power plant. Its top design speed has never been announced except for the statement that "from a power and drag standpoint [it] has been designed to attain higher speeds than the X-1." Top speed is believed to be around 2,000 mph.

- **The Douglas X-3**, a radically new, extremely streamlined design, will feature a completely different type of wing, details of which are still security-locked. Fastest of all the high speed research planes from a design standpoint, the X-3 is expected to be able to top 2,000 mph.

Now nearing completion at the Douglas plant, the X-3 should be moved to Edwards AFB soon and may start its flight program before the end of the year.

### The Heat Barrier

In connection with the high speed research program, scientists of the National Advisory Committee for Aeronautics are now directing their research toward conquering a new barrier to high speed flight—the "heat barrier." The original barrier, the "wall of sound," turned out to be not quite as formidable a problem as had been expected, but the heat barrier is likely to be tougher.

The new barrier arises from the fact that aerodynamic heating increases with speed. In the speeds thus far attained, it has not presented a problem, but it will in future flights. At Mach 3 (about 2,000 mph) the boundary layer of air around a plane will reach 600° Fahrenheit; at Mach 5 it goes up to 1600° F.

These extreme temperatures weaken aluminum structural parts, so probably new materials will be required for construction of high speed aircraft. Stainless steel, used in the X-2, holds its strength better at high temperatures, and titanium is another metal which may be used. One engineer from Northrop Aircraft has suggested the use of glass plastic laminate.

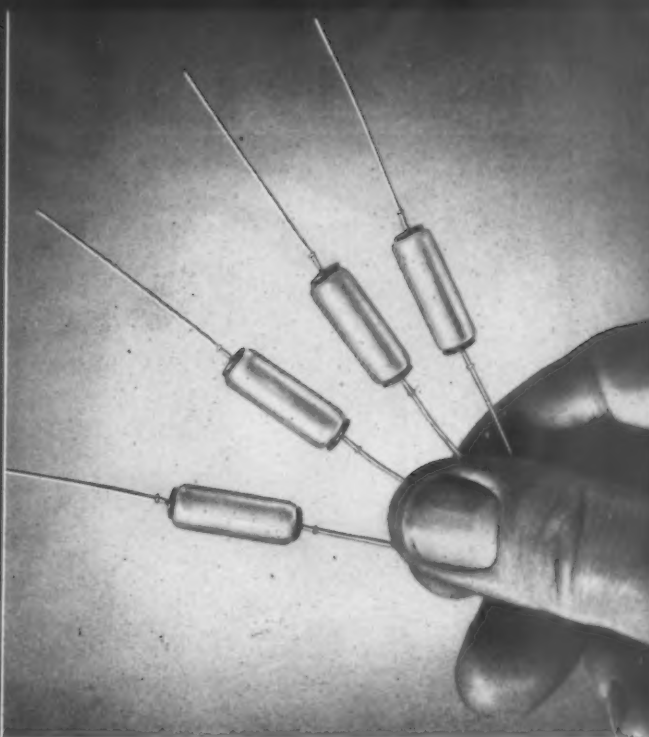
But even the use of these materials may not solve the problem entirely, so NACA is looking for some method of removing the friction heat. For very short periods of high speed flight, water cooling may be practicable, NACA feels, but the water supply takes up space and cuts into payload. A more practicable method being explored is boundary layer control. NACA has discovered that a smooth (or "laminar," in NACA language) boundary layer flow produces much less skin friction than a turbulent layer next to the plane's surface, so development of a method of boundary layer control may also solve the heat problem.

NACA doesn't have the answer to the heat barrier yet, but it is hard at work. Experiments on skin friction and heat transfer have been carried on at speeds up to Mach 3 and will continue at higher speeds when new research facilities become available.

...JAMES J. HAGERTY, JR.

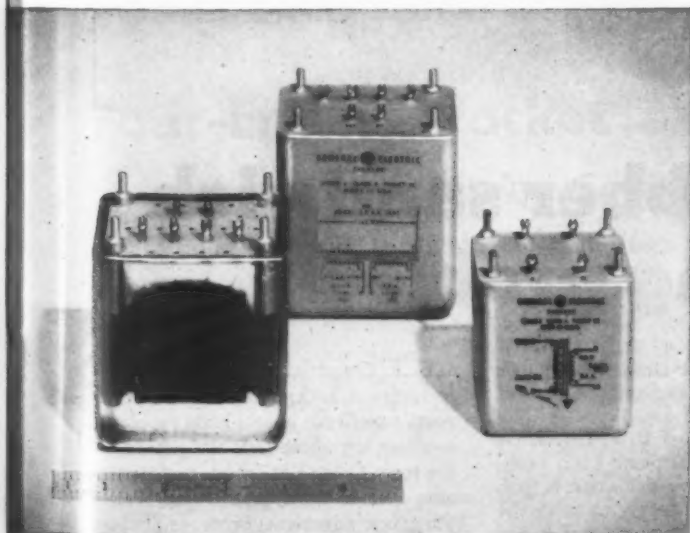


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## New G-E Components Are Lighter, Last Longer



**NEW CAST-PERMAFIL HERMETICALLY SEALED TRANSFORMERS** for radar and other electronic equipment are lighter and 20% smaller than present models. Unit on left is cast in clear plastic to show internal construction. Designed to meet MIL-T-27 Grade I, the new transformers are now available in limited quantities for developmental programs.

New products like these are continually being developed at General Electric. Years of experience at turning complexity into simplicity mean low-cost, dependable products for modern aircraft electrical systems.

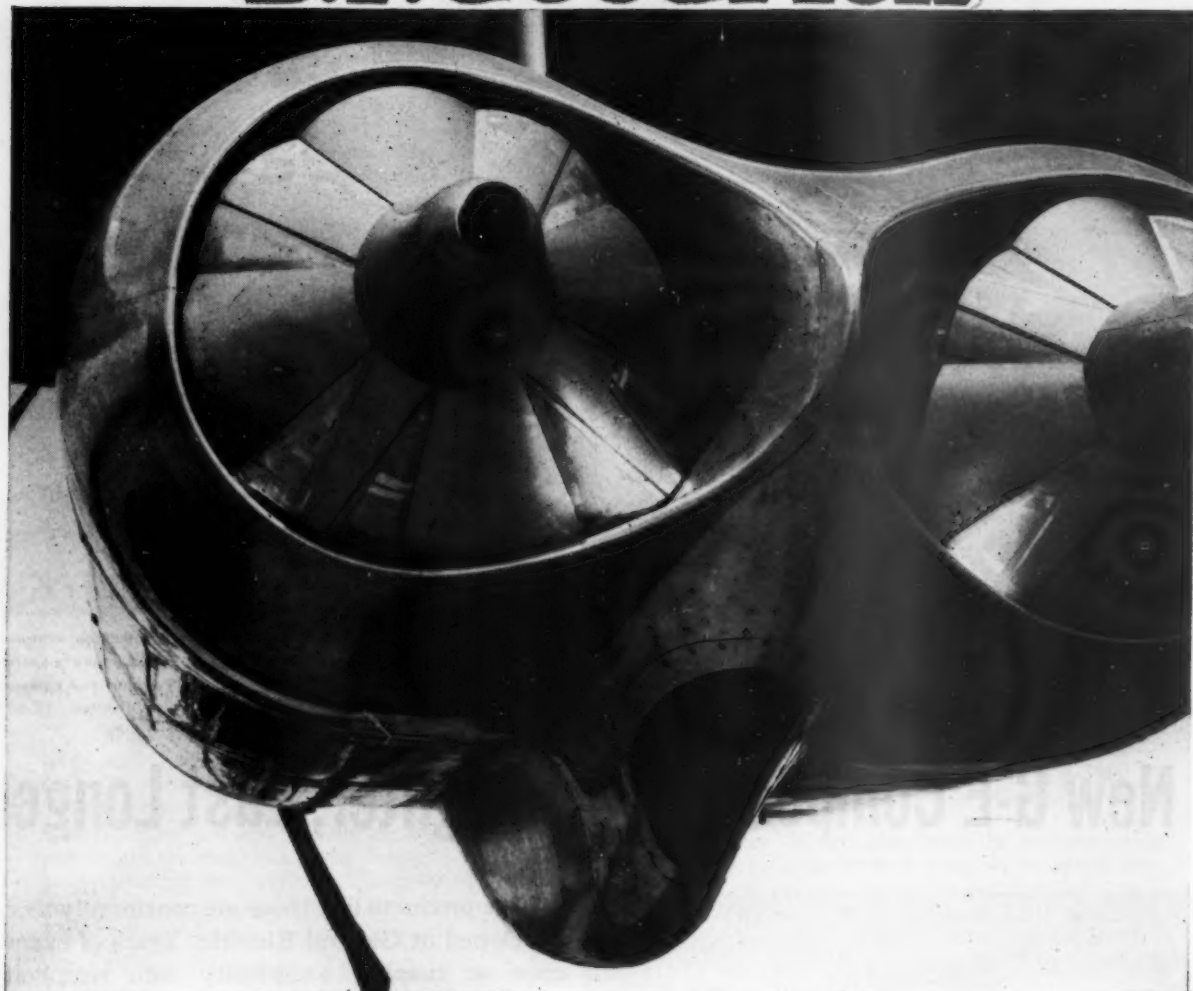
The next time you specify electrical components, call on General Electric. You may find that a G-E Aircraft Specialist can recommend just the equipment you need for better aircraft performance. Contact the Apparatus Sales Office nearest you. Or, write to *Section 210-35, General Electric Company, Schenectady 5, New York.*

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# B.F. Goodrich



## Wafer-thin rubber sandwich solves icing problem

**T**HIS JET ENGINE has only a part-time job. It provides extra power when the Convair B-36 takes off, in gaining desired altitude, and for that extra burst of speed needed over target areas. The rest of the time, it has to be covered to keep the air from going inside.

That's the reason for the shutter-like "doors" you see. Doors that *must* open when the extra power is needed. And ice forming in flight could seal the doors tight. Heat had to be provided, yet the shutters had to be almost wafer-thin. The manufacturer of the doors thought he could do it by making the shutters like a sandwich—if the sand-

wich filler could be made thin enough and still provide the amount of heat needed to keep off ice.

The experience of B. F. Goodrich with hundreds of airplane icing problems came in handy on this one. It took some precise engineering to solve the tough problem of thinness, but it was done. The heater that turned the trick is only  $\frac{1}{20}$  of an inch thick! The core of resistance wires is imbedded by a unique BFG method into a layer of Fiberglas impregnated with rubber-like material. It provides all the anti-icing heat needed to keep the doors ice-free at all times!

B. F. Goodrich offers the aviation industry a background of almost 25 years' experience in anti-icing problems, working with both heat and pneumatic De-Icers. Other BFG products for aviation include: tires, wheels and brakes; Plastilock adhesives, Pressure-Sealing Zippers; fuel cells, Rivnuts, accessories. *The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.*

**B.F. Goodrich**  
FIRST IN RUBBER

AMERICAN AVIATION





MODEL of possible four-engine Fairchild Packet.

## Four-Engine Packet on Drawing Boards

Only major changes from C-119H are switch to P & W engines and three-bladed Hamilton propellers.

By JAMES J. HAGGERTY, JR.

**T**HE DISTASTE that some Air Force pilots feel for twin-engine aircraft may lead to development of a new military cargo and troop carrier plane, a four-engine version of the Fairchild C-119 Packet.

A large number of USAF pilots now flying Packets gained their initial experience in World War II four-engine bombers and transports, and they feel uncomfortable without "four fans." Accordingly, the Air Force asked Fairchild to work up a design for a troop carrier and cargo plane retaining the basic features of the highly successful Packet, but with four engines instead of two.

Initial design work has now been completed and the four-engine version is under consideration as a possible production model. There is a possibility that Fairchild might be ordered to build both versions simultaneously.

The four-engine Packet has not yet been accorded a designation, but it is basically a C-119H with the extra two engines. The added engines will contribute nothing in the way of performance, and performance characteristics will be approximately the same as those of the "H" model.

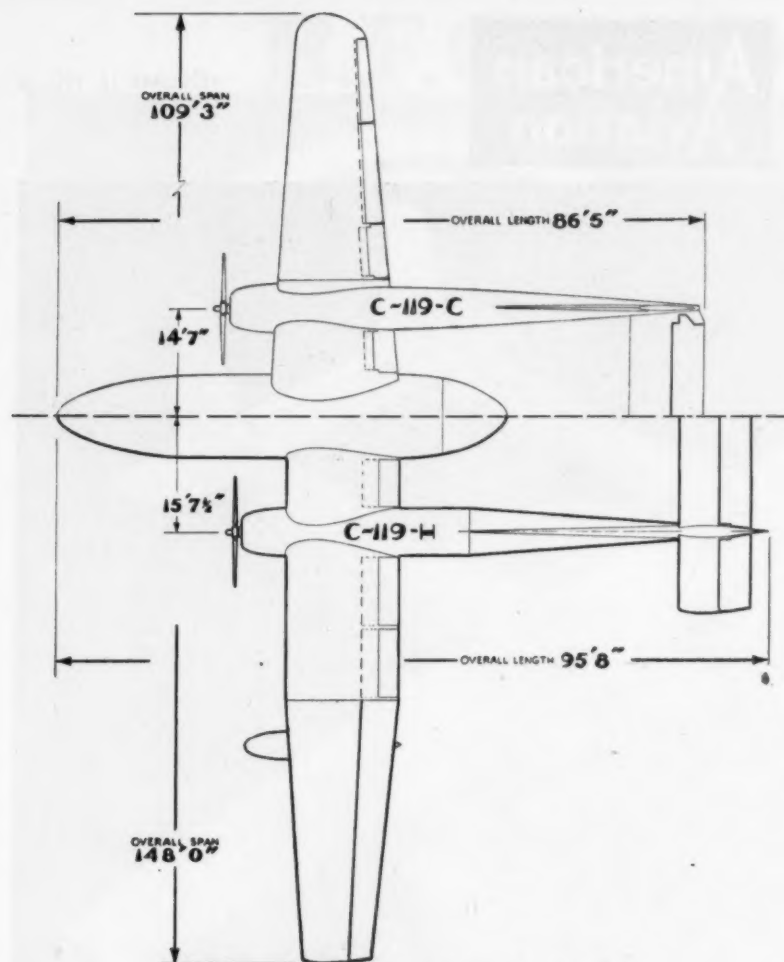
The four-engine plane would be powered by Pratt & Whitney R-2800-52W engines instead of the Wright R-3350-32W's in the C-119H, with

Hamilton Standard 2H-17 three-bladed propellers of 15-foot diameter substituted for the four-bladed Aeroproducts propellers on the "H."

The added engines also require an increase in fuel capacity from 2,692 gallons in the "H" to 3,417 gallons in the four-engine plane. The extra fuel weight, plus the weight of the engine installations, will add 10,000 pounds to the Packet's take-off weight.

Here is a comparison of the two:

	C-119H	Four-Engine Version
Empty weight	51,307 lbs.	52,206 lbs.
Basic weight	54,077 lbs.	56,781 lbs.
Design gross weight	80,870 lbs.	80,870 lbs.



COMPARATIVE dimensions of two Packet models.

Combat mission weight	61,379 lbs.	68,879 lbs.
Maximum take-off weight	101,000 lbs.	111,059 lbs.
Maximum engine power (Wet)	3,700 BHP	2,500 BHP
(Dry)	3,400 BHP	2,300 BHP
Normal engine power (Low)	2,850 BHP	1,900 BHP
(High)	2,450 BHP	1,700 BHP

Externally the four-engine version would differ only slightly from the C-119H configuration (see drawing); only changes are increased wing span to accommodate the two additional engines and a slightly larger tail section.

Meanwhile, Fairchild Aircraft Division is proceeding with development of the C-119H, which now has more than 100 hours flight time and is undergoing the second phase of its test pro-

gram (USAF flight testing) at the company's Hagerstown, Md., plant.

Fairchild engineers have come up with some new ideas since construction of the prototype model, changes which would probably be incorporated in production models. A major change is an increase in take-off weight to 101,000 pounds, which would make the twin-engine "H" heavier than some four-engine planes and about 15,000 pounds heavier than the experimental model of the "H".

#### Fuel Jettisoning

The added weight is made available by provision for fuel jettisoning, which is simplified by the fact that, in the "H" model, all fuel is carried externally in under-wing tanks. Since the fuel is located on the center of gravity, jettisoning does not affect the pitching moment of the plane, and being outboard and isolated, the dumped fuel is clear of the plane. Fairchild believes that fuel jettisoning will have a greater effect on single-engine performance than propeller feathering,

thus permitting the increased take-off weight.

At 101,000 pounds, the Packet could carry a maximum overload cargo of 32,000 pounds on a mission with a radius of 1,000 nautical miles. This compares with a payload of about 20,000 pounds on a similar mission in the prototype model of the "H".

Another design improvement planned for the production model is substitution of "beaver-tail" overhead-raising cargo doors in the rear of the cargo compartment for the clam-shell doors in present production C-119's. The beaver-tail doors may serve as a loading ramp on the ground and in the air they can be raised out of the way for aerial delivery.

Further design changes under investigation include:

- A front compartment door that swings down to form an entrance stairway;
- A floor-roller conveyer system instead of the overhead monorail;
- Stronger metal surface for cargo floor;
- Improved cockpit design;
- Flush antennae;
- Extra gear for a dual-tandem landing gear arrangement;
- A self-sealing fuel tank external blanket;
- A split horizontal stabilizer for improved spare stabilizer handling;
- A three-piece engine cowl;
- Grouping of the wing and cargo compartment heaters within the fuselage.

For future development of the Packet design, one major item under consideration is the use of Allison T-40 power plants of 5,500 horsepower with counter-rotating propellers, which would boost the payload even higher.

Also under consideration are installation of search radar in the fuselage nose, a completely redesigned electrical system, substitution of magnesium for aluminum alloys in the structure, and a high horizontal stabilizer and elevator. The detachable cargo compartment, pioneered by Fairchild in the XC-120, might also be incorporated in future production versions of the Packet.

Fairchild has not yet received a production order for the "H", but it is a likely prospect. The decision should be forthcoming after the Air Force evaluates the results of the Phase II flight test program; so far the plane has performed well for the USAF test crew.

Should the USAF also decide to go ahead with the four-engine version, Fairchild could utilize a single production line up to a point in assembly, since, with the exception of the wing and tail, the components of the two models would be identical.

## Five-Year Tax Writeoffs Back Again Through DPA

The Nation's airlines are again eligible to apply to the Defense Production Administration for permission to write off the cost of their postwar planes in five rather than the conventional seven years for tax purposes.

Early this year, DPA established such a policy on the grounds that these new aircraft added to the country's airlift capacity in case of emergency and consequently qualified under the Government's certificate-of-necessity program. By February 29 this policy had resulted in the approval of rapid-write-off certificates for 214 planes valued at \$171.5 million.

Shortly after that, however, the Defense Department and the airlines agreed on a civil air fleet mobilization program calling for Government use of 400 four-engine commercial airliners in case of emergency. When this occurred, DPA decided the expansion goal for air carriers had been reached and stopped approval of rapid write-offs to air carriers.

But the Air Force soon wrote the Defense Air Transportation Administration that it favored continuance of the policy and DATA passed this along to DPA with its own comments favoring re-instatement of the program. As a result DPA set a new interim expansion goal of 600 commercial aircraft by December 31, 1954. Consequently 386 planes are still eligible for rapid amortization.

## UAL May Sell Surplus Douglas Equipment

The possibility that United Air Lines will offer some of its DC-4's and DC-3's for sale in the near future was discussed on the president's page of a recent issue of UAL's News.

When asked by an employee of the status of the planes after receipt of the new Convairs and DC-7's, W. A. Patterson, UAL president, replied: "We have made no definite decisions on what we will do with surplus aircraft after DC-7 and Convair orders have been completed. My assumption is that we will have a surplus and that we will sell these airplanes to anyone who may be interested in purchasing them. We haven't firmed up any specific number that will be surplus. In the past, we have found that equipment of inferior comfort and speed to that in our regular schedules is not generally accepted by the public as reserves for second sections."



**Navigator-bombardier trainer**, the T-29B, is shown in first flight view. The latest model is pressurized, provides students with advanced electronic equipment, and has a gross weight of 43,575 pounds, compared with the 40,500 pounds of the T-29. Periscope sextant is visible in roof, forward of the three astrodomes.

## Ryan: "Inherent Dangers" in Mergers

CAB Vice-Chairman Oswald Ryan last week supported "proper" airline mergers but warned of "inherent dangers that must be carefully guarded against" in the use of mergers as a means of modifying the nation's air route pattern. For example, he said, "We must avoid the mistake of regarding mergers as ends in themselves—as self-executing panaceas for the economic ills of the airline industry."

Ryan's views, perhaps the most significant personal views of a Board member during the current era of mergers, were contained in an address on "The Progress of Air Transportation" given before the Rotary Club, Los Angeles.

Ryan said the "idea that merely putting two weak carriers together by means of a merger will inevitably produce a strong air carrier is not a valid assumption, in my opinion. Such a merger may in some cases be desirable. But in other cases it may result in a combined carrier that is equally weak or even weaker than the two were before the merger. Two minuses do not necessarily make a plus in the mathematics of merger.

"Nor should we consider that equalizing the size and strength of air carriers is the practical or desirable objective of mergers. The reason why such a policy would not be sound is the

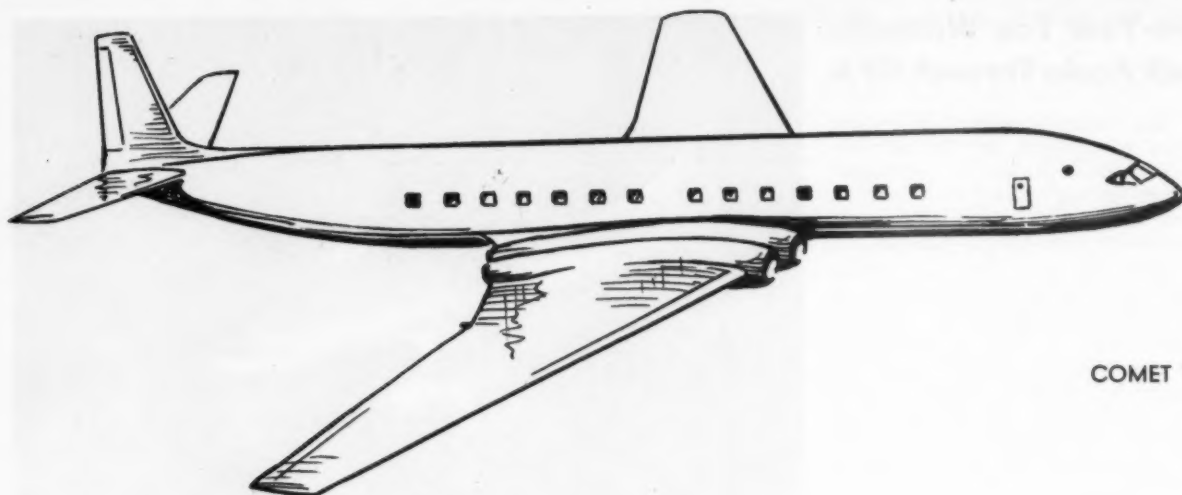
simple fact that there is no direct and constant relation between the size of an airline and the economic efficiency of its operation. The airline experience of the past 14 years will show that sometimes the medium-size air carrier accomplishes a more economical and efficient operation than the big carrier."

In the current drive to improve the route pattern, Ryan added, expansion through new route grants is out. Interchanges and "proper" mergers constitute the present phase "which is designed to permit air transportation to improve its service to the public and, at the same time, strengthen and make more economic its component parts."

## \$3 Million Worth of Simulators Ordered

United Air Lines has placed a \$3,000,000 order with the Curtiss Wright Corporation for two DC-6 and two Convair 340 flight simulators for pilot training. The trainers will be full-scale replicas of the nose sections of the two planes. Overall dimensions, not including the housing for the electronic "brains" which simulate flight conditions, will be 9 x 22 feet.

United plans to assign one of each type to their Chicago and Denver bases.



COMET "III"

## Farnborough: The Wraps Come Off the Newest

**British exhibits will show first-rate industry in fighting trim for world markets.**

By RICHARD G. WORCESTER

**L**ONDON. Whatever the visitor to the annual trade show put on at Farnborough by the Society of British Aircraft Constructors sees when he tours the exhibits during the first few days of September, he should come away with at least one impression clear in his mind: despite the shaky state of British finances, Britain's aircraft industry is full of fight.

This is only the first show since the rearmament crisis got under way, and consequently the new aircraft that will be shown do not represent as many

production units as they should, or as they will in the next year or two. Nevertheless, Britain, banking on a flood tide of sonic-type, swept-wing aircraft, has plenty to show in both the transport and military fields.

The most important new end-items slated for the Farnborough Show are:

• **Avro Super-Delta Four-Avon-jet bomber.** This scaled-up version of the 707 delta probably weighs, in its present form, around 130,000 pounds. There is a race against time to get it finished: at present it looks as though the most dramatic airplane yet built in the U.K. will just fail, in which case it will stage

a miniature Farnborough of its own a little later.

• **Saunders-Roe SR-45 Princess,** 315,000-pound, 10-Proteus II, turbine-powered, two-deck flying boat. Finishing touches to the boat are in progress; great efforts are being made to fly it in time, but again the boat might just miss the show. The two other sisters have been shelved for the time being by the Churchill Government.

### Use Proteus

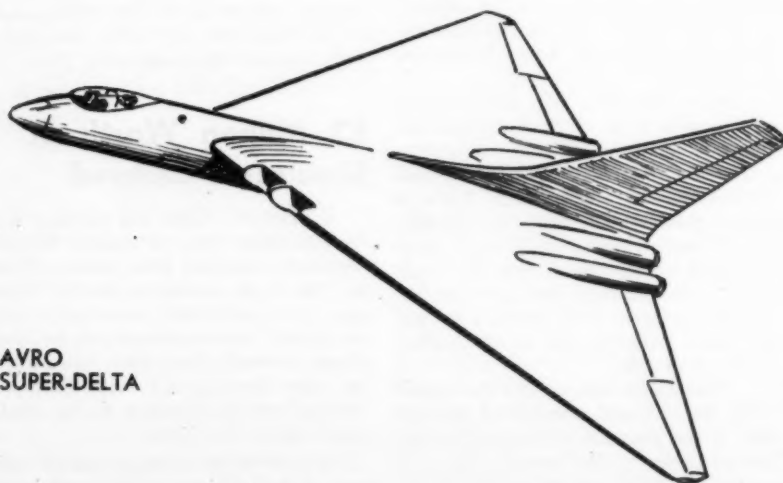
• **Bristol Britannia,** 130,000-pound, long-haul, four prop-jet transport, which will fly with Proteus IIs; the second airplane will have the new and improved Proteus III. Canadians are interested in this aircraft slated for BOAC trunk routes in 1955. Orders placed now could not be filled much before 1957.

• **Gloster GA.5,** second prototype of this multi-purpose fighter, the world's largest delta, with two 8,300-pound Sapphire jets, is due to fly in time for the show.

• **Supermarine Swift.** The prototype missed the show last year due to gear trouble: it should make some runs at 700-730 mph if flown at full speed.

• **Supermarine "Swept 508."** Progress on this aircraft is uncertain. It has been suggested that there might be British equivalents of the American trend of using very high angles of sweep—up to 60° on Hunter- or Swift-type fighters. This again is not confirmed at the time of writing. A 45° version of the Hunter with a 10,000-pound jet would be the U.K. parallel to the North American F-100.

• **Avro Ashton.** This is a new derivative of the six aircraft being built. The duties of this aircraft have not been



AVRO  
SUPER-DELTA



unveiled, although, in broad terms, it is a flying test bed for high-altitude jet research. One airplane is fitted out as a jet transport.

- **Westland-Sikorsky S-55.** Farnborough, by tradition, is a fiercely nationalistic show, and this prototype may be barred from the show on account of its U.S.-built engine. (It does not matter about it being an American design so long as British craftsmen fashioned it.)

- **Bristol 173 rotor transport.** This airplane, like the Swift, missed the show last year due to gear vibrational troubles. It should fly this year.

- **Olympus-Canberra.** First British aircraft with two 10,000-pound, two-spool jets. The Olympus is the image of the Pratt and Whitney J-57.

- **De Havilland Comet II.** With over 100 hours flight time the 115,000-pound, 500 mph transport will also be making its first appearance. First production articles are not expected before the end of 1953.

- **De Havilland 110.** This twin-Avon, multi-purpose aircraft should join with the GA.5 in some very high Mach numbers at the show.

- **Avro Shackleton Mk. II.** First appearance of the new, cleaned up derivative which is phasing into production with the end of the Mk. Is.

- **Vickers Valiant.** The second Valiant should also be there—this will be an interesting exhibit. No pictures taken of the aircraft have so far been released.

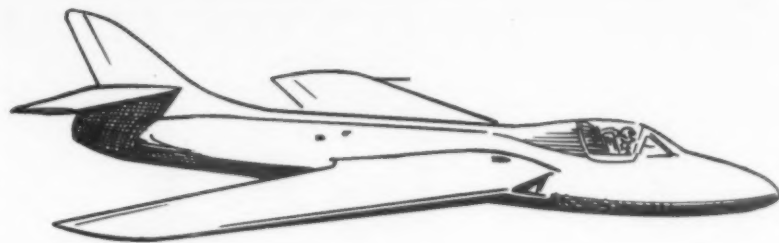
#### Other Projects

Not all of the above aircraft will necessarily take part, but those that do not will be replaced by other new projects unveiled as a surprise at the last moment. There is, for instance, a new Boulton Paul Delta. A new and advanced Fairey aircraft is also overdue.

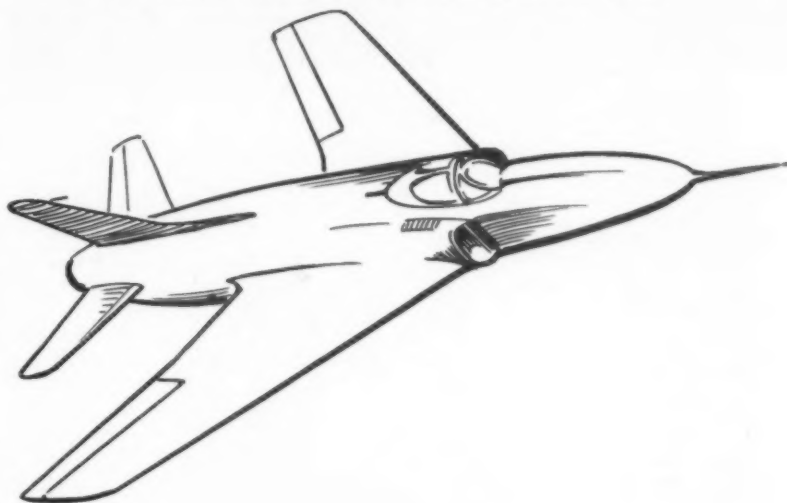
In the transport field a basic principle of special interest is that the Comet has been rated equal with military aircraft in importance as an economic weapon. A military production line at Short Brothers was canceled in favor of the second Comet line, leaving this Northern Ireland company with three main production lines—Comet, Canberra light bomber and its own Sealord local liner.

Nothing, curiously, has been done to alleviate the long delivery times for the Viscount—an aircraft which promises to be more of a money-maker than the Comet in the long run. The company says it can double its production rate, but the long delivery dates are known to be causing many carriers to take another long, hard look at the Convaire 340-Viscount situation.

There has also been news of two jet transport projects—both adaptations of bombers. One of these is a Handley Page adaptation of what foreign re-



TWO "SUPER-PRIORITY" fighters, the Hawker Hunter (above) and the Vickers-Supermarine Swift (below), are almost twins even though they come from rival stables. Both the swept-wing planes have the same engine—the Rolls-Royce Nene—and the difference in their speeds is marginal.



ports say is the H.P. 80 bomber, powered with Sapphire jets around the "Crescent" or compound-taper wing. The other is a civil adaptation of the Valiant with four 10,000-pound jets—Olympus or Avons.

But the most promising projects are the de Havilland Comets III and IV which are to follow the current Mk. II. De Havilland has the manufacturing and operating know-how and is in the best spot to exploit it. The Comet III would have about the same body extension that the L-1049 has over the 749's and with four Avons in the same class as the 8,300-pound Sapphire jets.

The Comet IV would be a much bigger project with four even larger engines, but no details of this aircraft are yet known and any facts at this stage are pure speculation. Clearly, however, a 190,000-pound jet with four 12,000-pound "by-passed air," two-spool jets with fuel specifics of around 0.7 would be a formidably efficient product. It would come near to the concept of the 200,000-pound trans-Atlantic project with four 15,000-pound static thrust engines that de Havilland itself envisaged in an astonishingly prescient piece of crystal gazing way back a year or two after the war ended.

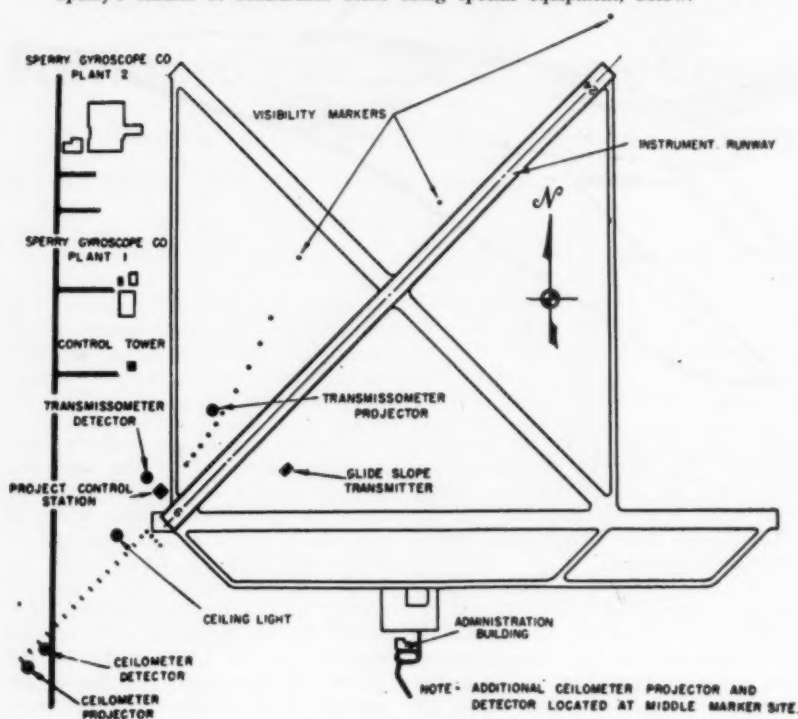
For the rest of the products there is a Super-Viscount on the slate, but here the engine is the difficulty. The Dart was a 1,000-hp project which is near its maximum at 1,500 hp, and an engine of 2,000 hp would really be needed as the logical pulled out derivative of this regional transport. The Napier Naiad starting at 1,500 hp and working up to 2,000 might be the answer. De Havilland and Napier are reported to have new turboprops waiting to go.

There have also been changes to the future rotor-craft picture—the trend is now to go straight from the small, experimental aircraft to the 40-passenger product that, the airlines calculate, would earn money.

Bristol has a four-Dart project on the way with a tandem rotor development of the 173. Fairey has a highly unusual project with two gas producers turning the rotor and blade tip ejection like the Hughes XH-17, except that the Fairey is reported to have wings and a couple of turboprops for traction as well. Percival has an even more unorthodox project, also with gas producers and rotor blade ejection. The Civil Ghost gas producer is a new rotor-craft engine with a future.



LOW WEATHER approaches as shown above may be simplified through Sperry's studies at MacArthur Field using special equipment, below.



## What's the Weather on the Runway?

Must a pilot be in it before he finds out?  
ANDB and Sperry think not, prepare for tests.

By JOSEPH S. MURPHY

ONE OF THE PERENNIAL problems that has existed in aviation since the beginning of IFR operations has been the inconsistency that arises between the weather reported to a pilot making an instrument approach under borderline visibility conditions and the "slant line visibility" he actually experiences. A major step in the

direction of solving this problem was taken not long ago by the Air Navigation Development Board in the award of a \$285,000 contract to the Sperry Gyroscope Company to conduct a two-year flight research program which will in effect put the "weather bureau" in the cockpit and at the end of the runway.

Using the latest meteorological instruments developed by the U. S.

Weather Bureau and the Bureau of Standards, Sperry's flight research crews, already experienced in the art of low visibility flying by reason of independent research over the past years, will conduct 1,000 test approaches at Long Island's MacArthur Field in ceilings ranging from 800 feet to the lowest they are confronted with during the program.

With the technical assistance of 10 specialists from the U.S.W.B., ground weather observations in the approach zone, at the runway threshold, and down the runway will be recorded and synchronized with photographic and crew observations made on each flight.

### Flight Plan

The plan for a typical flight calls for assignment of three ground crew members at a control station located near the runway threshold to measure the ceiling on the final approach path with two newly developed ceilometers. This crew will also measure visibility with a transmissometer, brightness with a photometer, and wind force by an anemometer. A double check on visibility will be made by ground crew observation of targets placed along the runway.

In the Douglas DC-3 test plane a six-man crew of two pilots, engineers and technicians will observe and record every detail of the flight. Report of the first vertical ground observation, view of approach lights, and sighting of the runway threshold will be synchronized to the second with data recorded on the ground.

### DC-3 Use

The use of the DC-3 for all of the initial research is by no means an indication that factors peculiar to larger aircraft are being overlooked. ANDB explains that after the necessary background is obtained and all other factors have been ruled out, the use of such equipment will be considered in a similar or in an extended program.

Sperry's obligations in the project are not restricted to conducting the flights and recording data. The compilation and analysis of the extensive information obtained and the preparation of a report which is to include the company's specific recommendations constitute a major part of the project.

Target date for commencement of flights is September 1. Can pilots be given approach-zone weather reports accurate enough so that they will know in advance at what altitude they will make visual contact? The joint ANDB-Weather Bureau-Sperry program should provide the answer.



## Something new under the star

Newest U. S. Air Force fighter will be a Convair-built, very-high-performance interceptor. By being selected to produce this interceptor, Convair has attained leadership in *all basic types* of aircraft — bombers, trainers, transports, fighters and water-based planes. Proof again, that Convair engineering achieves the maximum of air power...

Engineering to the **N<sup>th</sup>** power!

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TWIN-ENGINE equipment still flies the 4,350 miles from Moscow to Khabarovsk. Above, loading at Moscow.

## Just How Good is Russia's Civil Aviation?

Red claims paint a rosy picture, but study shows USSR lags far behind the West.

By CHARLES ADAMS

Former staff member of American Aviation Publications, now studying Russian at the University of Colorado.

**S**OVIET RUSSIA's civil aviation, still cast in a strictly subordinate role to the USSR's military buildup, has fallen far short of the goal which it shares with all Communist industry: "catching up with and surpassing the West."

Started in 1946 and completed in 1950, Russia's Fourth Five Year Plan had as one of its objectives the lengthening of its airways from the 137,000 kilometers (85,000 miles) existing in 1940 to 175,000 kilometers (109,000 miles). Coincidentally, the Soviet government launched programs for repairing airfields damaged during the war, improving navigation and communications facilities, and re-equipping its civil air fleet with postwar transports.

According to Soviet claims, the airways system achieved its first postwar goal—expansion to 175,000 kilometers including duplications—in 1948, more than two years ahead of schedule. Volume of civil passenger traffic by the end of the 1946-1950 Five Year Plan was reported as increasing more than "13-fold" over 1945, while freight was up "three-fold."

On February 29, 1952, the Russian publication *Red Star* declared: "There is now no large industrial center or provincial (*oblast*) capital in the Soviet Union that is not linked by an airline with the rest of the country. All the prewar air services have been restored, and new ones have begun to operate.

"By as early as 1948 the total length of our airways was considerably greater than the length of the internal airlines of the United States. The civil air services of our country carry the largest volume of freight of any in the world."

### New Transports

Proud reference also was made to the new civil transports: the twin-engine, 27-32 passenger IL-12 and the four-engine, 66-passenger IL-18, both of which were placed in service in 1948. The number of stops on many main routes has been cut in half and frequency of flights stepped up.

Russia's civil airline monopoly, Aeroflot, established in 1923, has emerged as one of the world's largest airlines, flying more scheduled plane-miles than any other carrier and ranking in the top five from the standpoint of unduplicated route mileage.

But the exact extent of the USSR's postwar civil aviation progress is

shrouded in statistical overcast. Few specific figures are given. With rare exceptions, new data are expressed in terms of percentage growth from an undisclosed base figure.

Significant fact is that Aeroflot during the postwar period has been overwhelmingly dependent on twin-engine aircraft, even on the longest hauls from Moscow across Siberia to the principal Far Eastern centers of Khabarovsk (4,350 miles) and Vladivostok (4,750 miles). The same is true on Aeroflot's international routes from Moscow to Berlin, Helsinki, Vienna, Budapest, Sofia, Warsaw, and points in the Middle East.

The Moscow-Vladivostok run, according to the Soviets, is the world's longest continental route. Seemingly it would receive high priority for service by four-engine equipment. Yet, in announcing establishment of regular daily service between Vladivostok and Moscow in August, 1950, the Vladivostok radio noted that twin-engine IL-12's (a plane both smaller and slower than the Convair-Liner) would be used. It was emphasized that the planes would be "equipped with soft chairs." Westbound flights left Vladivostok at 7:30 a. m. local time and arrived in Moscow on 10:30 a. m. of the third day.

(The Russians, however, are thankful for small favors. The train trip between Moscow and Vladivostok during the immediate postwar years required nine days.)



# The Soviet Score

## Progress is Apparent . . .

- More Russian IL-12 twin-engine transports have been built than any civil plane other than Douglas DC-3's.
- In the five-year period ending 1950, passenger volume on USSR airlines was up "13-fold," cargo up "three-fold."
- Postwar goal of extending airways from 85,000 miles to 109,000 miles was achieved in 1948, two years ahead of schedule.
- In 1935 Russia is credited with carrying as much air freight as U. S., Germany, Great Britain, France, Italy, and Japan combined. This was up four-fold by 1949.
- There are about 20 airfields in the vicinity of Moscow. Best airports have 8,000-foot runways, are planned for 1,000 flights per day and for 150-ton aircraft.

## But . . .

- Civil aviation has fallen far short of its goals.
- Even on the 4,750-mile flight from Moscow to Vladivostok, Aeroflot's longest route, the 226-mph, twin-engine IL-12 is operated.
- Until recently night travel by air was very limited. The IL-12's cut travel time on the Moscow-Vladivostok route from nine days by train to 51 hours by plane.
- In 1952 Vhabarovsk, a city of one-half million people, handled 200 passengers a day, or 1/20 the number at San Francisco, a comparable city.
- With some cities 1,000 miles from the nearest railroad, an indication of surface transport progress, flight frequency between some major cities is only two flights a day.

Soviet Russia's all-out war effort, which saw the nation's transport production devoted overwhelmingly to twin-engine types—mainly DC-3's built under license—accounts for the absence of four-engine equipment during the first postwar years. But the scarcity of the larger ships since 1948, when the IL-18 became available, reflects strongly on the caliber of present-day Soviet civil aviation.

Yet extravagant claims continue to be made. Lieutenant General of the Air Force Vassily Stalin declared recently: "Our great country was the birthplace and cradle of aerial navigation. The first flying machines in the world, both lighter-than-air and heavier-than-air, were built in our land by the hands of our people, [also] the first aviation motors, speedy and heavy multi-engine planes, the first helicopters and autogyros, flying boats and parachutes, aviation instruments and armaments, the all-metal dirigible and jet-propulsion planes."

### The Russian Mother

In July, 1952, the Moscow radio asserted: "Our country is the motherland of planes and airships. The great Russian people were the first to outline the direction in which world aviation thought was to develop and to embody the dream of conquest of the air element. Other nations learned from us and emulated our experience."

Why then has Russia not received its just recognition for these achievements, which supposedly include the first plane flight in 1882, more than 20 years before the Wright brothers flew at Kitty Hawk? Colonel General P. Zhigarev recently cleared up the point in *Prauda*: "Tsarist officials hushed up the inventions and discoveries of Russian scientists. They kowtowed slavishly to the West. Priority in the most important discoveries and inventions made

by Russian scientists was brazenly appropriated by foreign businessmen and rogues."

(The Russian news agency Tass, in a July, 1950, broadcast from Moscow, compared the outstanding achievements of Soviet civil aviation with "the monstrous crimes of American imperialists [who] recently used their aviation to drop a tremendous number of Colorado beetles over the territory of the German Democratic Republic.")

### Every Incentive

Covering a sixth of the world's land area and handicapped by inadequate highway and railroad systems, Russia has every incentive to develop its civil aviation. Its progress has been substantial but trails far behind Soviet propaganda claims. The current situation in Russian civil aviation—as pieced together largely from the USSR's own Russian-language reports—is as follows:

- **Passenger Traffic:** The USSR is still a very poor second to the United States. Prior to World War II, Soviet commercial aircraft carried only about a sixth as many passengers as the U. S. In 1938, for example, the USSR's civil airlines flew only 234,000 passengers, compared with 1,365,000 for U. S. domestic carriers alone.

In 1945, Moscow airport had a daily turnover of about 1,000 passengers daily—a tenth as many as New York's LaGuardia Field.

Early in 1952, the Russian radio proclaimed that Khabarovsk—major industrial and commercial center of eastern Siberia with perhaps a half-million population—had an average of 200 passengers daily using its airports, or less than five percent of the volume at San Francisco, a city only slightly larger. Even this low passenger flow at Khabarovsk was an increase of "several times" the 1949 level.

- **Air Cargo:** The USSR undoubtedly pioneered in this field. In 1935, for example, neutral sources estimated that Russia carried as much air freight as the U. S., Germany, Great Britain, France, Italy, and Japan combined. By 1939, Soviet air cargo volume had increased four-fold, while that of the U. S. had only doubled.

Still, the claim of N. Zakharov, Aeroflot's deputy chief of administration, in the July 16, 1950, issue of *Izvestia* that "the planes of our civil aviation carry more freight than in any capitalist country" has no current validity. U. S. air freight and express volume skyrocketed in 1950 to 70 times the 1938 figures. While the Russians boasted of a "three-fold" gain in air cargo under the first postwar Five Year Plan, U. S. domestic freight and express volume combined increased seven times.

### One Railroad

The inadequacy of the Soviet Union's surface transportation, and the consequent need for rapid development of air cargo, is illustrated by the fact that only one railroad runs the entire length of Siberia, and none runs north and south. Some cities are nearly 1,000 miles from the nearest railroad station, and during the long winters transportation is impossible over the frozen rivers.

For many years leading Soviet newspapers, such as *Prauda*, have flown light weight impressions of their pages from which metal plates can be cast to permit publication in distant cities—including Leningrad, Baku, Khabarovsk, Novosibirsk and Rostov—shortly after their appearance in Moscow. Planes have also been used for short-haul newspaper delivery.

Aeroflot has developed considerable cargo volume in such items as mechanical and electrical equipment between the main industrial centers and huge



TERMINAL BUILDING, as shown in Russian publication.

new projects under construction in remote parts of the USSR. Equipment for oil development in Sakhalin, for example, is being flown in by air. Fruit and vegetables are also flown from southern regions to the northern industrial cities.

• **Transport Aircraft:** While the USSR has exposed nothing spectacular in the form of new transports to the Western view during the postwar period, it boasts of a wide background in developing large aircraft with high load capacity. The Russians claim to have built the first large four-engine aircraft in the world in 1913. It reportedly weighed 7,716 pounds empty and could carry a useful load of 3,174 pounds.

#### Polar Flight

In the summer of 1937, the Soviet Union announced the flight of four four-engine planes to the North Pole, each carrying a ten-ton payload. In 1936, the Soviets claim that one of their heavy-duty freight planes set an altitude-with-payload record unmatched by an American plane until the advent of the Flying Fortresses five years later. In 1938, an improved Soviet transport reportedly lifted a 13-ton payload to an altitude of 15,000 feet.

These achievements contrast with the unimpressive equipment now used on Soviet airlines. The USSR has exhibited no four-engine transport, used in regular service, that compares with the Constellation, DC-6, or Stratocruiser. The best twin-engine aircraft are inferior in size and performance to the Convair-Liner and Martin 2-0-2.

#### IL-12

Passengers .....	27-32
Weight empty .....	19,850 lbs.
Weight loaded .....	38,000 lbs.
Payload .....	6,610 lbs.
Speed, maximum .....	226 mph
(sea level)	

Speed, cruising ..... over 200 mph  
Range (with 32 pass.) ..... 777 miles\*

\*De luxe model with 16 passengers has range of 1,865 miles.

#### CONVAIR-LINER

Passengers .....	40
Weight empty .....	26,400 lbs.
Weight loaded .....	40,500 lbs.
Payload .....	8,150 lbs.
Speed, maximum .....	347 mph
Speed, cruising .....	272 mph
Range .....	920 miles

However, from the standpoint of number in service, the IL-12 already ranks second only to the DC-3 among the world's transport aircraft. Hundreds are in use in Russia and on the routes of satellite countries such as Czechoslovakia, Poland, and Rumania, replacing the LI-2 (Russian version of the DC-3). In addition, the IL-12 is widely used by the USSR's armed forces.

The four-engine IL-18, of which far less is known than about the IL-12, has a maximum speed of around 291 mph. Cruising speed is around 225 mph, and range is 1,500 miles. By contrast, the Constellation's maximum speed is listed at over mph, cruising speed at 328 mph, and normal range, 3,000 miles.

• **Flight Frequency:** In 1949, toward the end of its first postwar Five Year Plan, the USSR was operating 1,691,000 scheduled plane-miles weekly

over an unduplicated route network of 49,000 miles. At the same time, the United States was operating 9,204,000 scheduled plane-miles weekly over an unduplicated domestic and international route network of 179,000 miles.

Thus the U. S. flew more than 51 plane-miles weekly for each route-mile operated, while the USSR flew less than 35.

Latest Aeroflot schedules covering the summer of 1952 show substantial increases in service, especially between Russia's principal industrial cities and the spas of the Crimea and the Caucasus. Several months earlier, in April, 1952, the daily service between Moscow and the Far Eastern metropolis of Khabarovsk was increased to twice daily.

#### Two A Day

By U. S. standards, twice-daily service between the largest city in a nation and the principal city at the other end of the continent would be entirely inadequate. Operation of two roundtrips daily from Moscow to Khabarovsk might be compared to operation of the same number of flights from New York to San Francisco.

• **Speed and Convenience:** Schedules of the twin-engine IL-12's over some segments of short-haul routes in western Russia and the satellite countries compare favorably with similar operations in the U. S. One major source of delay on Aeroflot is the hour-and-20-minute stopovers made at meal time so that passengers may eat on the ground. Shortest stop on Aeroflot's international routes is 45 minutes.

#### Night Stopovers

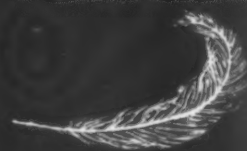
But on the long-haul routes, Aeroflot's service lags far behind Western standards, especially in the winter. As late as the winter of 1948-1949, the 4,750-mile flight from Moscow to Vladivostok took 70 to 80 hours and included three night stopovers. In the spring of 1949, Moscow radio announced that the flight time had been reduced to 44 hours without stopovers.

(Sharp reduction of travel times on the USSR's long-haul routes in the spring and summer—as compared with fall and winter—has been a common practice. Some summer schedules a few years ago were three times faster than winter flights over the same route, according to *Pravda*. This is because of the long hours of daylight in the far-northern latitudes. Until recently, night flying on Russian civil air routes was quite limited.)

On the Moscow-Khabarovsk run (4,350 miles), travel time was also cut nearly in half in the spring of 1949 and this summer is being covered in 28 hours without night-time stopovers. The number of intermediate points was reduced from eight to four.

**LIKE** "opening a barn door  
in a hurricane".....with a

**FEATHER**



### 30 Milliamp Signal Controls 50 Horsepower

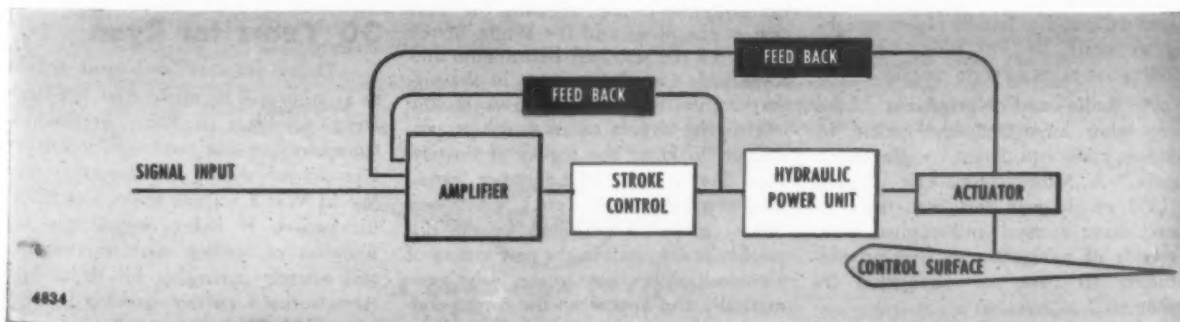
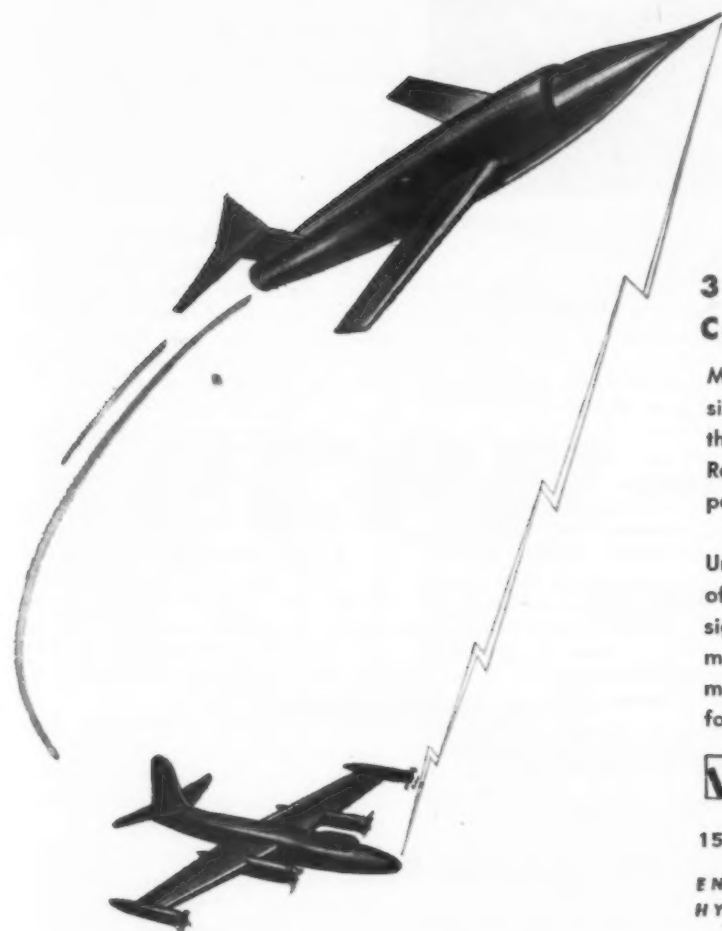
Modern aircraft control surfaces are not the size of a barn door but the wind across them is several times hurricane velocity. Results are similar . . . it takes plenty of power to control them.

Vickers Electro-Hydraulic Servo Power Units provide rapid and accurate control of up to 50 horsepower with a 30 milliamp signal. This is another Vickers accomplishment in the control of heavy power by means of very minute signal inputs. Write for special bulletin No. SE-18.

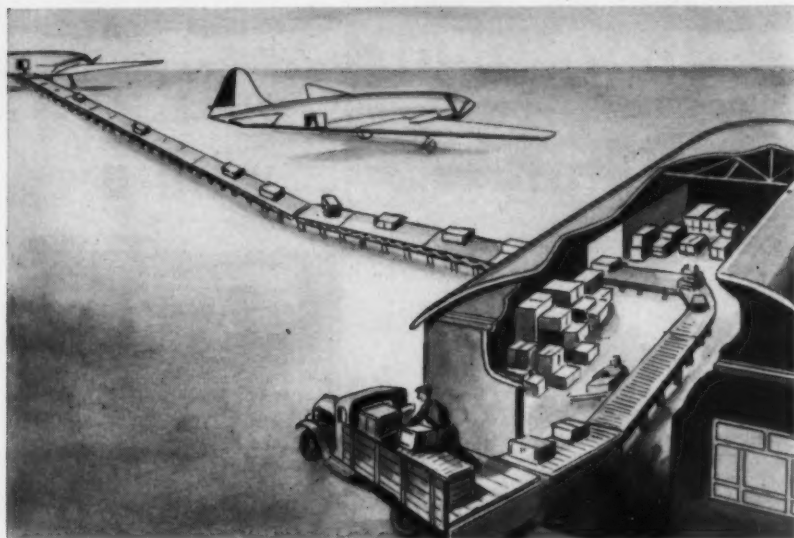
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ENGINEERS AND BUILDERS OF OIL  
HYDRAULIC EQUIPMENT SINCE 1921







CONVEYOR BELT is shown as loading device in Russian drawing.

• **Airports:** The postwar period has been marked by a huge expansion, both in number and quality, of Russian airport facilities. Moscow has remained by far the largest air terminal in the country, having about 20 airfields in the vicinity. Most of these are military or are connected with industry.

Tushino Airfield, where the well-known annual fly-past takes place on Red Air Force Day, is of comparatively little commercial importance. While it has one of the best runways in the Moscow area, it is a rather small "show" field containing the headquarters of the USSR's central flying club.

#### Vnukovo Airport

Vnukovo Airport, located on a main highway about 25 kilometers (15½ miles) southwest of the capital, is Moscow's most important commercial field. The Soviets claim Vnukovo is not only one of the biggest airports in Russia but in the world as well. Here 60 or more IL-12's may be found at a given time.

Length of main runways on Russian airfields of the largest class ranges upward from 8,000 feet. The principal fields were planned to take care of 1,000 flights daily and to handle planes weighing as much as 150 tons. Terminal buildings at main airports contain hotels.

• **Radio and Navigation:** Like every other important development in aviation, radio equipment "originated in Russia." A Moscow broadcast of July 3, 1952, emphasized that "we [the Russians] have evolved and applied basic methods of navigation as well as constructed all basic air navigation instruments."

While there is never any official

intimation that Russian civil aviation is afflicted with such capitalistic troubles as crashes, equipment failures, personnel incompetence, or profit and loss, it is conceded that increased traffic in the vicinity of major airports calls for better communications.

Finding that traffic control via direct communication between tower and pilot is inadequate, the Russians report that their technicians are working on the creation of automatic direction of traffic.

"Of these [automatic traffic control systems]," one technical discussion observes, "the autoblock system is the most interesting and is closest to realization. In substance, it is as follows:

"Along the 'aviotrack' at a set distance from one another, radio-locator stations, or blockposts, are installed. A plane flies along the track from one block post to another. Every blockpost activates a radio transmitter installed in the aircraft flying over it, and that transmitter automatically sends the height of the flight to the blockpost.

"The blockpost in its turn automatically transmits the information received from the plane to the nearest airport. There the information appears on the dispatcher's map, showing the location of the plane and the height of the flight. All the standard information and commands (weather reports in the airport region, barometric pressure on the level of the airport, storm warnings, permission to enter the region of the airport, direction as to the entrance 'gates,' height of the flight, etc.) which are [now] given to the pilots by the dispatcher orally, shall in the new system of autoblocking be given to the plane automatically and appear on the corresponding board in the pilot's cabin."

• **Approach Lights:** Besides conventional radio and lighting aids for bad weather landings, the Soviets report that some airports are equipped with condenser discharge lights. These lights apparently are similar to those used at Newark since 1947 and have been tested at Arcata, Calif., and Cleveland.

The center-line approach light system proposed by the Air Line Pilots Association in 1950 also provided for the use of condenser discharge type of flashing high-intensity white lights in front of each slope-line bar unit.

The Russians assert that due to its great intensity (one U. S. version produces a beam of 3.3 billion candlepower at maximum brightness), the flash of the condenser discharge light, although lasting but the smallest fraction of a second, is able to "break through" layers of dense fog 300 to 450 meters (approximately 985 to 1,475 feet) thick.

#### Russian "Lightning"

Russian condenser discharge approach lights are arranged in a row 1,000 meters (approximately 3,280 feet) long. The farthest light from the runway gives the first flash, a second then flares up, a third, etc. In a fraction of a second, all the lights in the line give one flare. The Russians claim that this lighting "lightning," running every second toward the runway, gives the pilot a clear indication of the proper direction and track to the runway.

• **Flight Personnel:** Flight crews in the USSR enjoy a privileged status. The Soviets have reported that their civilian airmen are entitled to a pension of half pay at the end of 20 years' service, which they may retain even if thereafter they engage in other work.

Thirty years' service brings a pension at full salary, and complete disability due to accident or illness arising from work brings a pension 50 percent larger than former earnings.

In 1950, more than 600 Aeroflot air crews had badges for flying over 1,000,000 kilometers; 22 had two such badges; and the oldest pilot and engineer had their third badge.

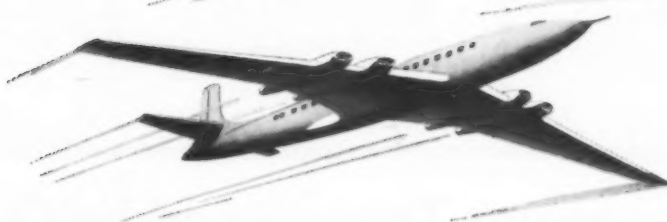
## 30 Years for Ryan

Thirty years of prominent activity in aviation will be marked by T. Claude Ryan, president of Ryan Aeronautical Company, at the end of September. Ryan, who started his career with a World War I surplus Jenny and \$25 in his pocket, is today one of the few founders of leading aircraft companies still actively managing his firm. Ryan Aeronautical's current backlog is set at more than \$70 million.





*of all the World's  
International Airlines\**



**seven** *out of* **ten**  
**use**



### **Aviation Products**

● Outstanding leadership in aviation petroleum service does not just happen — it is the result of more than 45 years of aviation experience.

● 87 of the 91 successful trans-Atlantic flights — up to 1937 — used gasoline supplied by an ESSO refinery, and none of these flights failed.

● More recently, ESSO Laboratories here and in Europe have pioneered the development of synthetic turbine lubricating oils, which currently are being supplied for the design testing

of certain of the newest and largest British and U. S. turbo jet engines. ESSO turbo oils have superior low temperature characteristics and at the same time show remarkable load-carrying ability at operating temperatures.

● Today, marketers of ESSO Aviation Products — at hundreds of major airports along the airways of the world — provide long-range airline operators and others with the most efficient ground service as well as uniform high quality fuels and lubricants.



**A good sign to fly to**

\*As listed by: C.A.B. "World Directory of Airlines"  
and international aviation trade press

# AIRLINE REVENUES

## MANAGEMENT PREROGATIVE THEORY



ONE DOLLAR AIRLINE REVENUES

LESSENS FUTURE MAIL  
PAY DEPENDENCE;  
INCREASES INVESTMENT  
POTENTIAL

## GOVERNMENT RESERVE FUND THEORY



ONE DOLLAR AIRLINE REVENUES

LESSENS FUTURE MAIL  
PAY DEPENDENCE;  
CLAMPS LID ON EARNINGS;  
STIFLES INCENTIVE

## GOVERNMENT LIMITED EARNING THEORY



ONE DOLLAR AIRLINE REVENUES

PASSES EXCESS EARNINGS  
TO PUBLIC; DISCOURAGES  
INVESTORS

## Airline Revenues Threatened by Govt. Plans

Post Office and CAB have their own ideas on where the airline revenue dollar should go.

By WILLIAM V. HENZEY

**T**HE DOMESTIC airline industry appears headed for a financial showdown with the Government, and the result may be a financial "night-mare" if certain Government theories materialize. Faced with the serious problem of providing for adequate long-range money needs, the airlines' plight has given rise to some government-developed plans which seem designed to answer the question: "What can we do with money you're getting now?"

### PO Proposal

Among these theories:

- A Post Office Department proposal for establishment of an "earnings equalization reserve" into which airline earnings over a certain amount would be placed, under machinery designed by CAB to be used only when the need is established and recognized by CAB.

- Civil Aeronautics Board resistance to fare increases and a CAB probe to see if current fare levels are too high.

- A CAB staff proposal that an adequate fare structure be tied to "return on investment" as opposed to industry hopes for reliance on "operating ratio."

- Some complex legislative proposals on the all-important subsidy separation question.

The airlines, many of which are out from under subsidy for the first time, are urging Government to recognize what has been termed the "management prerogative theory." In essence, they want to provide for tomorrow's needs through current operating earnings without having to fall back on Government assistance, if in fact such assistance will be there when the need arises.

They want, out of current operating earnings, to cushion themselves against new equipment demands and to attract investors in the furtherance of CAB's own cries for more equity financing.

Weighed against this, of course, is the fact that Government assistance played a major role in helping the industry over the rough spots during the period of development and now with matters reversed, the Federal body wants to prevent "windfalls" where tight control may serve such a purpose.

Generally, the airlines and Post Office are thinking along the same lines with respect to establishment of a reserve. But the airlines want to handle any reserve as good business judgment dictates; the PO would have it Government-controlled.

The PO proposal has been advanced in the Braniff Airways Mail Rate Case before CAB. Author of the scheme is

George E. Goldthwaite, consultant in public utility matters and a member of the firm of Hine & Goldthwaite, N. Y.

In written testimony, now the subject of controversy between the airlines and the PO, Goldthwaite said, "The general nature of the accomplishment at which I aim is the use of excess profits in one period to offset the deficiencies of another period."

### Equalization Reserve

"A balance sheet account designated as equalization reserve will be set up. The amount determined as excess revenue will be credited to this reserve and thus withheld from surplus. In the determination of excess income for purpose of credit to reserve the government subsidy would be considered the same as any other revenue. However, in the case of government subsidy granted in any one year the excess earnings from non-subsidized operations in the subsequent three years would become payable to the Government so far as necessary, in compensation for the subsidy."

The plan, as proposed, would limit a company's effective earnings to a prescribed amount of fair return over a limited period of years with the excess earnings for, say three consecutive years, going into the reserve fund. If no subsidy is required during those years, the excess earnings of the first such years would be debited to the reserve and credited to surplus.

While this does not contemplate putting an absolute lid on earnings, it would mean earnings for a given number of years would be placed beyond the control of a carrier. An analogous situation might be the maintenance man or office worker who wanted to save \$5,000 but found he would have to save twice that much because the first \$5,000 would have to go in a specially devised reserve fund.

**How does industry feel about this?** Braniff, the immediate carrier involved, first doubts the power of CAB legally to establish such a reserve. Second, B. Howell Hill, Braniff attorney, in a motion to exclude Goldthwaite's testimony from the CAB rate case, raises this question: "What purpose and incentive would there be in the development of passenger and freight business if it resulted in profits in excess of the recapture level and such returns could be recaptured for the benefit of the mail rates?"

This position was supported by Stuart G. Tipton and D. W. Markham, counsel for the Air Transport Association, voice of the scheduled airline industry in this country. They said the CAB, which would be the administering body of the PO plan, has no power to impound mail, passenger, freight, and express revenues.

#### Basic Fares

This leads then to another major phase of the industry's financial battle, namely, the CAB handling of basic fare structures which was brought to a head early this year when the airlines, faced with rapidly rising costs and other factors, proposed a \$1 increase in all fares and elimination of the 5% round-trip discount. Annually, this would mean about \$28 million additional revenue to the domestic trunk carriers.

CAB went along with the \$1 fare hike (worth about \$16 million to the industry), blocked the round-trip discount elimination (worth the other \$12 million), and ordered a general investigation of the airline fare structure. Under the Act, if CAB finds the current structure unreasonable and therefore unlawful, it can prescribe what it considers a lawful level of rates.

There has, of course, been no predetermination of the investigation by the Board. But it could lead not only to rescinding of the \$1 increase, continued blocking of the round-trip elimination proposal and other possible fare increases, but also to a reduction in fares.

The criterion used by CAB in determining an airline's progress is, to a great extent, the carrier's return on investment. In mail rate cases, present rates are designed to assure an 8% return domestically and a 10% return in inter-

national services. Prior to the current inflation, a 7% return was recognized.

Some airlines today are, according to CAB studies realizing more than the recognized return and have done so for the past year or two. Thus, this would seem to imply that a fare reduction is in order, as was the case back in 1945 when war-time traffic was at its peak.

#### "Meat on Our Bones"

Mail rates were cut then and so were fares. Mail rates are being cut now and the fare reduction is a possibility. Industry wants to avoid the evils that beset it in 1947 when government financial aid was necessary to bail it out. As Ernest W. Jennes, American Airlines' attorney phrased it at a recent CAB conference, "We want to get a little meat on our bones."

The airlines, according to statements made at the opening session of the general fare investigation, believe their fare structures are, if anything, too low, and that the traditional mail rate yardstick of "return on investment" should not be employed in determining the reasonableness of a commercial rate structure.

Robert Hankins, counsel for Capital Airlines, spearheaded an airline drive which resulted in amending issues of the case to consider the commercial rate yardstick of "operating ratio."

Operating ratio, in industry, recognizes the difference between operating expenses and operating revenue. If the difference in favor of revenue is non-existent or diminishing rapidly, this would dictate either a cut in expenses, an increase in fares, or both.

Investment, upon which return may be figured, is too elusive an object to be captured in the words allowable for this article. Public utility law is full of intricate cases where the proper investment base of a company is at issue. But the CAB fare investigation could be decided on this issue: "What rate of return for the industry should a just and reasonable rate structure produce?"

#### Ultimate Losers

If CAB goes along with the traditional 8% return of mail rate fame and orders fare cuts, it would be clamping a lid on airline earnings with the public the immediate beneficiary through lower fares, but perhaps the ultimate loser if the Government has to bail out the industry in leaner years.

The Post Office plan and the CAB fare thinking give promise of complicated days ahead for airline accountants, if not disastrous ones for management incentive. For sheer complexity for all, couple these with the various proposals being considered by Congress on the

subsidy-separation issue. A typical one states:

"CAB can enter contracts with U.S. international lines providing that payments will be made without reduction over any period not exceeding 10 years if the carrier agrees to pay to the U.S. 50% of all net profits which exceed an average of 10% per annum of the capital investment of the line used in or useful for such transportation."

## Mexican Line Asks Hearings on New York

Aerovias Guest, S. A., the Mexican airline, has urged the Civil Aeronautics Board to grant it immediate hearings on its long-standing application for a New York-Mexico City foreign air carrier permit. In the newest development in the tense situation between the U. S. and Mexico over bi-lateral air transport rights, Guest pictured Mexico as "the notable exception" to the U. S. policy of granting operating rights to New York to friendly foreign nations.

There is no bilateral agreement in effect between the countries. Negotiations on an agreement broke down last December when agreement could not be reached on operating rights between Mexico City and Los Angeles. They have been "suspended" ever since.

Recently, however, Eastern Air Lines, awarded a New Orleans-Mexico City route by CAB in 1946, received a similar authorization from the Mexican Government apparently without the sponsorship of CAB. Guest, in an apparent reference to this action, told CAB "it would appear from recent developments that the carriers of the respective countries may seek implementation of route franchises granted by their governments on a piece-meal basis."

The Mexican line contended a bi-lateral agreement is not necessary for CAB to grant the New York request. Such action, the carrier said, would be "consonant" with the Chicago Convention.

## Kemp Promoted to CAA Administrative Post

Samuel A. Kemp of CAA has been promoted to the newly-created post of Assistant Administrator for Administration. Prior to his new position, Kemp, who has been with CAA for 17 years, served as deputy regional administrator in Kansas City and most recently was on temporary assignment as regional administrator in Honolulu.

*Leadership demands constant achievement*



Faster  
than a cup of coffee

## Lockheed Starfires

destroy an air  
invader

**Incredible**—but in less time than the few minutes it takes to drink a cup of hot coffee a Lockheed *Starfire* (F-94C) can

**Take off from a cold start—**

**Climb 7 miles up in any  
weather—**

**Locate enemy bomber  
automatically—**

**Destroy the invader,  
without ever seeing it.**

Furthermore, the 2-man crew need never have seen the bomber they destroyed.

Today these all-weather jet interceptors are being delivered to the U.S. Air Force for 24-hour duty guarding U.S. borders and key cities. It gives the Air Force a fast-climbing jet fighter that is almost automatic—fore-runner of planes that may actually fly and fight by themselves.

The *Starfire's* brain center can locate invading bombers on the darkest, stormiest night. Its unique all-rocket armament can destroy the biggest bomber built.

The *Starfire* is another example of Lockheed design "stretch"—an engineering achievement of creating a more advanced model out of an existing airplane. This speeds development and production, also cuts cost. Forerunner of the *Starfire* is the Lockheed F-80 *Shooting Star* of Korean fame. Lockheed is the world's leading builder of jet aircraft.

## Lockheed

*Aircraft Corporation*

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for Leadership*



# Lockheed

## STARFIRE NEARLY AUTOMATIC FIGHTER

On the opposite page you see illustrated in action the nearly automatic Lockheed *Starfire* (F-94C). This all-weather jet fighter is an electronics masterpiece with an interesting development history.

The "C" is the third in the *Starfire* series and is now being delivered to the U. S. Air Force to augment squadrons of F-94A's and F-94B's now on 24-hour duty as protection for such key cities as New York and Washington.

The evolution of the *Starfire* actually dates from the spring of 1945, when Lockheed developed America's first operational jet fighter, the F-80 *Shooting Star*. From the F-80 came the T-33 two-place jet trainer now used to train 9 out of 10 U. S. jet fighter pilots (also pilots from 9 other nations).

In turn the T-33 was redesigned to incorporate the most advanced electronic equipment known as well as some unknown devices that had to be specially invented. This became the U. S. Air Force's F-94 *Starfire*, now developed to the point where it both flies and fights with more than human accuracy. It has an all-rocket armament—no guns!

Electronics innovations include the Westinghouse Autopilot and Sperry Zero Reader. It is one of the few fighter-type planes equipped with ILS (instrument landing system) for low-visibility landings. *Starfires* pack 1200 pounds of electronics, compared to 168 pounds of radio in the Lockheed P-38 of World War II.

The *Starfire* is the first production aircraft to fly with the new Pratt & Whitney J-48-P-5 jet engine. Its afterburner provides extra power for rapid take-off and extra performance in battle.

The F-94C is the largest of the original Lockheed jet series. The statistics: take-off weight, more than 20,000 pounds; length, 41 feet, 5 inches; wingspan, 37 feet, 6 inches; height, 13 feet, 7 inches.

A pioneer in the jet field, Lockheed has produced more jet aircraft than any other manufacturer.



T. E. BRANIFF, left, president of BNF, and J. W. Miller, president and general manager of Mid-Continent, shake in front of a Convair 340.

## Stockholders Emphatic on Merger Vote

Overwhelming approval marks Braniff and Mid-Continent action; new certificate last step to go.

**T**HE MERGER of Mid-Continent Airlines into Braniff International Airways was all but completed late last month when stockholders of the firms voted overwhelmingly in favor of linking the two systems. Only minor legal details remained and, as this issue went to press, managements of the companies were aiming at an August 15 completion date.

Last May, CAB unanimously approved the deal in the shortest major economic proceeding in the Board's history—four months. Indicative of final action will be the issuance by CAB of a new certificate, in Braniff's name, reflecting the combined systems.

Braniff stockholders, meeting in Dallas on July 29, voted approval of the merger by a 663,069 to 681 count. This was 163,068 votes more than required by Oklahoma corporate law for approval. At Kansas City, on the same day, MCA stockholders favored the deal by a vote of 523,665 to 40,479, reflecting a margin of 44,495 over the two-thirds required under Delaware corporate law.

The expanded Braniff organization which will offer service to 61 U. S. cities and eight Latin American countries will number some 4,000 employees, with Dallas continuing as company headquarters. T. E. Braniff and Charles E. Beard will continue as president and executive vice-president, respectively. MCA Board Chairman Thomas F. Ryan, III and

President J. W. Miller will join the Braniff board of directors and Miller will also serve as a vice-president.

Braniff was founded in 1928 and incorporated in 1930. At the beginning, it flew three round trips daily between Oklahoma City and Tulsa using a five-place, single-engine plane, and employing a staff of three people. The merger with MCA gives Braniff more than 17,800 certificated domestic and foreign route-miles and results in a combined fleet of 58 multi-engine aircraft.

Braniff now has nine DC-6's, one Convair 340, nine DC-4's and 13 DC-3's. MCA has five Convair 240's and 21 DC-3's. When present orders for new aircraft are filled, the combined fleet will total 83 aircraft, assuming all current planes are retained. Braniff has on order 19 Convair 340's; MCA has ordered six 340's.

Improved through service between many points will result from the merger. Among these will be (a) Chicago-Kansas City-Tulsa-Houston; (b) Twin Cities-Kansas City-Dallas; and (c) Denver-New Orleans. In addition, MCA points not previously served by Braniff will, for the first time, have direct, one-carrier service to many of Braniff's Latin American points.

The merger also will reduce the number of trunk-lines in this country to 14, two under the number operating at the beginning of the year.

## Union Shop Agreements\*

### Full Union Shop

Bell-Buffalo—UAW  
C-W Propeller Division—IAM  
C-W Electronic Division—IAM  
C-W Wright Aero Division—UAW  
Hiller—IAM  
McDonnell—IAM  
Piper—IAM  
Kaiser-Frazer—UAW  
McCauley Corp.—IAM  
Menasco—IAM  
Jack & Heintz—IAM  
Ford-Chicago—UAW  
Continental Motors—UAW

### Modified Union Shop

AIRCRAFT COMPANIES  
Fairchild Aircraft Div.—UAW  
Fairchild Guided Missiles—IAM  
Fairchild Stratos Div.—IAM  
Martin—UAW  
North Amer.-Inglewood—UAW  
North Amer.-Columbus—UAW  
North Amer. Aviation-Downey—UAW  
North Amer. Aviation-Fresno—UAW  
Bridgeport Lycoming-Avco—UAW  
Westinghouse-Kansas City—UAW  
Packard—UAW  
Allison—UAW  
Aeroproducts—UAW  
Chrysler—UAW  
General Motors-Kansas City—UAW  
Buick—UAW  
Chevrolet—UAW  
Republic—IAM

### Maintenance of Membership

Beech-Wichita—IAM  
Bell-Fort Worth—UAW†  
Boeing-Seattle—IAM  
Boeing-Wichita—IAM  
Cessna-Wichita—IAM  
Cessna-Hutchinson—IAM  
Douglas-El Segundo—IAM  
Douglas-Santa Monica—IAM  
Douglas-Long Beach—UAW  
Douglas-Tulsa—UAW  
Lockheed-Burbank—IAM  
Lockheed-Marietta—IAM  
Ryan—UAW  
Temco—UAW†  
Sikorsky—UAW†  
Chance Vought—UAW  
General Electric-Lockland—UAW  
General Electric-Lockland—IAM  
Avro Canada—IAM  
Aerojet—IAM  
Swallow-Wichita—IAM  
Engineering and Research Corp.—IAM  
Convair-San Diego—IAM  
Convair-Fort Worth—IAM

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Colonial (Mechanics)—IAM  
Air France—IAM  
BOAC—IAM  
Capital—IAM  
Eastern—IAM  
Empire—IAM  
Frontier—IAM  
National (Mechanics)—IAM  
Pan American—IAM  
(Stockclerks)  
Pan American—TWU  
Southwest—IAM  
Trans-Pacific—IAM  
U.S. Overseas—IAM  
Wisconsin Central—IAM  
NWA—IAM

Colonial (Clerical workers)—IAM  
National (Clerical workers)—IAM  
Pan Am (Clericals)—BRC††  
TWA—IAM\*\*  
Trans-Texas—IAM\*\*  
UAL—IAM\*\*  
Hawaiian—IAM\*\*  
AA—TWU  
C&S—UAW  
Continental—UAW  
Mid-Continent—UAW

\* Information furnished by unions involved.

† Union shop agreements outlawed by Texas.

\*\* Small number of employees exempted; practically full union shop.

†† Agency shop.

## Union Security: Four Approaches for Labor

Compulsory membership spreads gradually as closed shop detours are employed, survey reveals.

By Robert M. Loebelson

MUCH has been said and written about the union shop issue in aircraft and airline negotiations with employes, but comparatively little has been published on the gradual spread of compulsory union membership. An AMERICAN AVIATION survey of the major unions in the two industries, however, indicates that the union shop in one form or another, while not quite the rule, is far from being an exception.

There are at least four major categories of union security in the aircraft and airline industries at present. They are:

• **Union Shop.** Under a full union shop, both old and new employes of a company must join the union and have no way of getting out of obtaining a union membership card.

### Modifications

• **Modified Union Shop.** There are various modifications of the full union shop agreement, but the most common, originally signed by the CIO-United Automobile Workers and General Motors Corp., basically provides that old employes need not sign up, and that new ones must join but have the option of getting out of the union when the contract expires or when they attain seniority.

• **Agency Shop.** When a union and company agree to this type of contract, it means that new workers must join up but that old employes need not actually take out membership cards. Those on the company payroll when the agreement is signed need only pay (or offer to pay) the equivalent of the union dues. If the payment is refused by the union involved, the employe remains on the payroll.

• **Maintenance of Membership.** With this clause inserted in a labor agreement, neither old nor newly hired workers are forced to join the union, but the company guarantees that those who do decide to become members will remain that way for the duration of the contract. A 15-day escape period for those seeking to leave the union is provided for at the expiration of the pact.

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Like most other labor organizations, the two major unions in the industry, the AFL-International Association of Machinists and the CIO-Autoworkers, would be more than willing to forego all of the above in favor of the closed shop, which was outlawed by the Taft-Hartley Act in 1947.

### Complete Control

Under the closed shop, a union had complete control over hiring because no one could go on the payroll without first being a union member. Passage of Taft-Hartley gave a company the right to hire whomever it wished, even if he was later compelled to join up under a union shop agreement.

When an aircraft contract comes up for renewal and the IAM or UAW makes its inevitable demand for a union shop if such a clause is not already part of the contract, union negotiators have little trouble citing examples in the aircraft industry itself. They can point to full union shop agreements in effect at such major plants as Bell-Buffalo; Curtiss-Wright; McDonnell; Kaiser-Frazer; Ford's J-57 plant at Chicago; and several others.

### Willing To Settle

If they are willing to settle for a modified union shop they can cite Fairchild, Martin, Republic, North American, Allison, Aeroproducts, Westinghouse's jet engine facility at Kansas City, Chrysler's engine plant near Detroit, and various General Motors airframe and engine plants.

In the airline industry, where the Machinists have sewed up many of the bigger lines, full union shops exist at Eastern, National, Capital, Colonial, Northwest, Air France, British Overseas Airways, and others. The IAM also holds modified union shop agreements with such carriers as United, Trans World, Hawaiian, and Trans-Texas.

Of other unions representing airline mechanical workers, the CIO-Transport Workers Union has a full union shop with Pan American and a modified one with American, while the Autoworkers have modified compulsory membership at Chicago & Southern, Continental, and Mid-Continent.

The Air Carrier Mechanics Association, an affiliate of the Air Line Pilots Association-AFL, is the bargaining representative on Braniff, Robinson (Mohawk), Southern, and Western, but has not signed any union shop contracts as yet. Several other lines, notably Pied-

mont, Pioneer, Central, Lake Central, and Slick either have no union contracts or else have company unions and have no union shops to contend with as a result.

Nor do union shops exist in any contracts signed by ALPA or any of its other affiliates, including the Air Line Stewards and Stewardesses Association and the Air Carrier Flight Engineers Association. The same holds true for the independent Flight Engineers International Association. These latter groups maintain they have almost all potential members signed up anyway and consequently have no need for compulsory unionism.

### Long and Bitter

The union shop issue has been a long and bitter one in the aircraft industry, with many companies successfully holding out despite either prolonged or threatened strikes. In 1948, for example, the Machinists engaged in a long walkout at the Boeing-Seattle plant, one of the principle issues being the union shop. In the fall of 1951, a strike at Douglas-Long Beach revolved around money and the union shop, the case ultimately being decided by the Wage Stabilization Board. Douglas, however, refused to give in on the WSB recommendation that it grant some form of union shop and that issue remains critical in Douglas-UAW bargaining, because a no-strike pledge in that pact does not apply to that particular point.

Another case which ended up before the WSB, the IAM and Boeing-Wichita, also resulted in a recommendation that a union shop be granted, but here again the company refused and a no-strike pledge does not apply to this particular issue. A third parallel is found in the current Ryan Aeronautical-UAW contract, where the Autoworkers again may call a strike over the union shop.

### Vexing Issue

More evidence of how vexing the issue is in aircraft labor relations may be found in General Electric's negotiations with both the UAW and IAM. Here again the employer has consistently refused to approve any contract calling for compulsory membership and brief walkouts took place at G.E.

In all of the above cases and in numerous others, the company has refused to grant any form of union shop because, it was stated: "The union shop is undemocratic because it forces employees to join a union against their will."

Unfortunately for aircraft management, however, the steel industry, which had been as adamant as some aircraft and engine builders, has just agreed to

a "modified modification" of the union shop which provides that:

- **Old employees need not sign up** but those who do must remain members until their escape clause becomes effective. This feature is similar to the maintenance of membership provision.

- **New employees must file application** for membership but have the right to void the application 15-30 days after going on the payroll. If they do not they can still get out of the Steelworkers union when the contract ends and the escape period goes into effect.

One prominent labor relations expert in the aircraft industry conceded that when Big Steel yielded on the union shop provision, "the camel got his head under the tent and it will be almost impossible to get rid of him." In other words, such firms as G.E., Douglas, Ryan, and others will have a far harder time resisting demands by the IAM or UAW in the future than they did in the past.

### Similar Situation

The same situation applies to airlines which are negotiating new contracts with the IAM, including All-American, West Coast, Bonanza, Flying Tigers, and Northeast, none of which have any such provision in current agreements.

The Big Steel concession on this point, reluctantly granted though it was, overcomes the principle objection voiced by industry generally in that membership is no longer compulsory. Even though new workers have to apply, it takes only a note to the steel company which hired them to void the application and remain outside the union.

Philip Murray's Steelworkers, of course, are betting that most newly hired help will be too lazy or too forgetful to send the voiding letter and in that way will automatically join the union. The steel companies, on the other hand, believe the "out" provided in the special modification will keep many from remaining in the union.

### Douglas Cuts Discount

Douglas Aircraft Company has reduced the discount which was applicable to the list price of certain spares from 55% to 50%. The airlines were notified that the change went into effect on August 2. This is the first change in discount in three years and returns Douglas to the rate which was effective in 1949. Douglas officials stated that they were forced to make the change because of steadily increasing costs.





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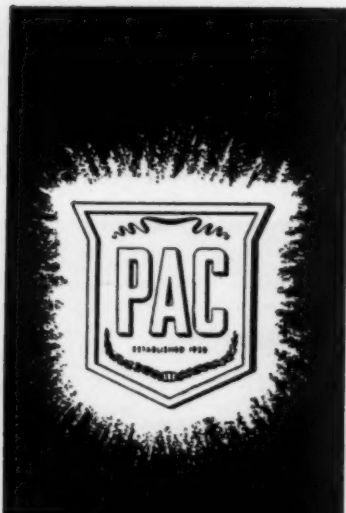
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## Extra Section

By William D. Perreault



**WE FAILED** to mark the 15th anniversary of the Pratt & Whitney R-2800 engine which passed earlier this year. Since its introduction (work started on it in March, 1937), the R-2800 has become one of the most widely used engines in aviation. It earned its early laurels as the engine of several top ranking World War II fighter planes and later settled down as the work horse of civil aviation in the Douglas DC-6 series aircraft, the Convair-Liners, and Martin 202's and 404's. Some 119,000 Double Wasps have been produced in the past 12 years and the engine is still going strong, gaining respect which can only grow out of reliable operational experience.

Each year we receive many pictures of National Safety Council officials presenting the worthwhile Safety Awards to top airline officials. Last month we found pleasure in a photo from All American Airways showing the presentation of the NSC award for the past year. It was presented to William Cranisky, senior Washington-based mechanic from point of employment, and Thomas Kincheloe, Jr., senior Washington-based pilot, who accepted it for the company. It reflected AAA president Robert M. Love's intention of recognizing the men and women who do so much to earn these awards.

Perhaps you've heard of people parroting the words of labor union chiefs in citing the need for higher pay and other concessions. An interesting twist to this charge comes from British Overseas Airways Corp. It appears that BOAC Chairman Sir Miles Thomas asked a pilot to buy him a parrot on one of his frequent trips to Africa. By the time the bird arrived in London it had picked up an interesting expression: "More pay for air crews."

Reports from the West Coast highlight an interesting legal problem associated with community relations of the aircraft industry. It seems that a test pilot dragged a chicken ranch and the noise, smoke, and resulting stampede killed several hundred chickens. The pilot assures the company he was flying legal, but the fact remains the damage was done. While willing to pay off because of community relations, the company is concerned over the legal precedent which this action might establish, a precedent which might be serious in the long run.

There are many persons who claim the "good old company spirit" that was so much a part of aviation in its earlier days is dead today. R. Dixon Speas, who flew as a passenger on the first scheduled passenger flight of the Comet from London to Johannesburg, South Africa, reports a resurgence of this spirit. He says he couldn't help but get the feeling that, had anyone called out, "The Comet is a dud" from the nearby woods as the ground crews went about refueling at some remote airport, they would have dashed into the underbrush, annihilated the brash person, and hurriedly returned to work.

Interesting switch: Admitting that on occasion it had given big headlines to airplane crashes, the Cincinnati *Enquirer* editorially saluted the airlines for "a superb achievement in safe transportation." The occasion was the recent National Safety Council awards to the airlines. Highlighting the airlines serving Cincinnati, the editorial said: "Especially since we have to feature disasters in air transport, we are glad to extend congratulations to TWA and Delta on their perfect scores for 1951. It is the sort of opportunity we welcome—to pay tribute to those airlines which have made themselves newsworthy in the ideal way—by keeping off Page One."



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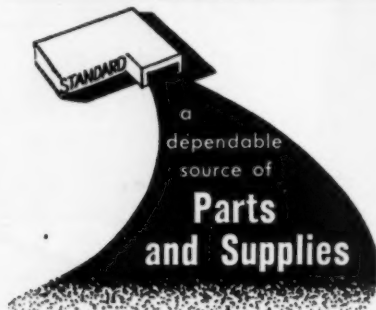
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## Convair Launches Planning Program

Lanphier heads new group, as reports spread that company is entering jet transport race.

**THOMAS G. LANPHIER, JR.**, vice president and assistant to the president of Consolidated Vultee Aircraft Corp., has a new job. He has been put in charge of planning for Convair. The move may have considerable significance for the development of an American jet transport.

To borrow the language of Convair's job description writer, Lanphier has been made responsible for "the collection, coordination, and collation of data prepared by corporate executives and division planning groups in the general area of long-range planning of corporate product policy; evaluation of such data in the light of stated corporate policies and the actual and potential requirements of customers; and recommendations confirming or changing the company's product policies and development and production programs."

What this means, summed up, is that Convair is instituting a long-range planning program at top management level, and it demonstrates that Convair is alert to shifts in basic fundamentals that are taking place in the relationship between the military and the industry.

In the never-ending and increasingly rapid evolution of weapons systems, the military is relying more and more upon manufacturers for "state-of-the-art" information as the basic element in their own long-range thinking and planning.

To assist the services in this regard, Convair, under Lanphier, has set up a planning group to integrate military requirements with the "state of the art," thereby assuring the services of the most efficient weapons attainable.

One result that can be expected from the new planning program will be a heightening of Convair's interests in the commercial transport field. Current Convair production is approximately 90% military and 10% commercial.

Already cutting its eye teeth in the problems attached to hooking a propeller onto a turbine engine with the T-38-powered Allison Turboliner and the T-40-powered XP5Y-1 flying boat, Convair will have gained a considerable amount of turboprop experience when the time comes for it to risk a commercial venture. By that time it will have

production turboprop planes in operation in both categories, T-29 conversions which have been ordered by the Air Force, and R3Y flying boats which are now being built for the Navy.

Most of the speculation concerning future U. S. commercial jet transports has centered around the projections of Boeing, Douglas, and Lockheed. Less well known is the fact that Consolidated Vultee is at work on a jet transport design at Fort Worth.

Unlike Douglas and Lockheed, who are shooting straight away at a commercial jet, Convair sees a military transport designed to fit into the logistic pattern projected for the armed forces. If the airplane succeeds in rating a military order, it is a safe bet that Convair will be out with a commercial brochure as fast as it can get one printed—and can be assured of engines.

Lanphier points out that sound planning is becoming increasingly vital for a going concern in the aircraft industry, not simply as a means of trying to alleviate the peaks and valleys of Congressional budgets, but because aircraft production of itself has come to be almost wholly on the long-range side.

### Systems, Not Units

Systems, not the individual units, have become uppermost in importance in mapping the defense of America. A new airplane or missile has to be more than just a good performer; it has to fit into the system.

The gap between airplanes and electronic equipment is an example of the need for long-range integration of engineering plans with production plans. Electronic equipment both for aircraft and missiles not only continues in importance but has also become the dominant lead-time item, making it mandatory for manufacturers to key their production plans into the availability of a host of electronic gadgets.

The man who has been given the responsibility for Convair's planning is one of the aircraft industry's newer and younger executives. A fighter pilot of distinction in both the Pacific and European theaters in World War II, Lanphier was managing editor of the *Statesman* in Boise, Idaho, when he became special assistant to W. Stuart Symington when the latter was Secretary of the Air Force. He accompanied Symington to the National Security Resources Board. In May, 1951, he became assistant to the president of Consolidated Vultee in San Diego.





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Although it was developed for use in connection with Lockheed's Model 1049B cargo Super Constellation, the Aerolift is so designed that it may be disassembled into components that can be stowed into the lower cargo compartment of such military transports as the Lockheed R60, R7V (C-121C); Douglas R6D (C-118B); and the Boeing C-97; or the main cargo compartment of the Curtiss R5C (C-46); Douglas R4D (C-47); R5D (C-54); C-74; Fairchild C-82 and R4Q (C-119).

Since it is not structurally attached to the airplane, the Aerolift may be towed from one airplane to another, and being a self-contained unit it may remain on the ground during a contin-

uous air-supply operation into and out of an airfield. It also can be used as an adjustable working platform for maintenance crews in servicing aircraft in the field.

The Aerolift is a square elevator platform, 10 feet by 10 feet, supported by cables at each of its corners and at the top of four vertical stanchions. The upper surface of the platform will rise to 144 inches above the ground in its "up" position, and in the "down" position is approximately six inches above ground level.

Concentrated platform load capacity is 500 pounds per square foot. Power unit is an electric hoisting winch and cable drum drawing its power from any ground 24-28 volt supply or from the airplane's electrical system.

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Lockheed is sub-contracting the actual manufacture of the unit, which is priced at under \$20,000.



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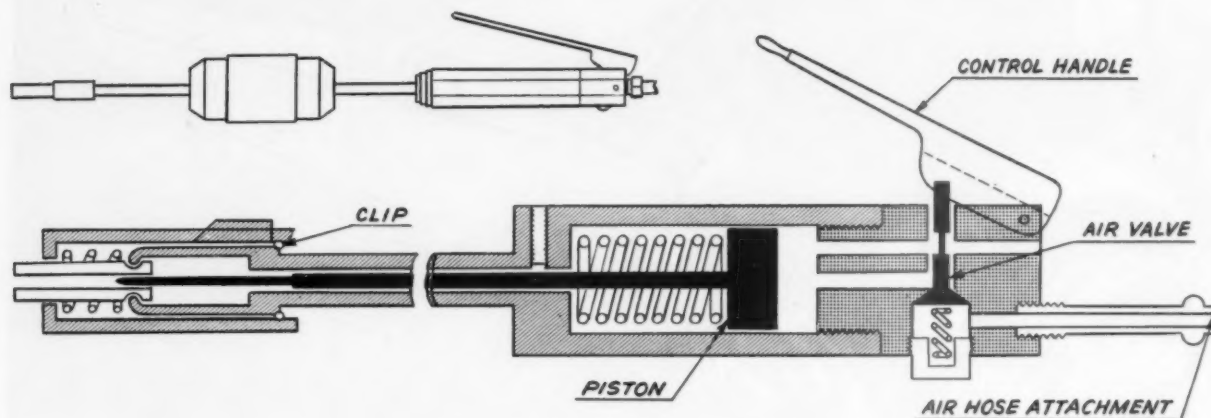


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## Pneumatic Tool Eases Tube Extraction

A 50% reduction in the time required to extract over 2,000 tubes from a Douglas DC-4 type oil cooler is a substantial saving in itself. But this is just one of the benefits afforded by the pneumatic piston-operated device designed by F. W. Borrish, a Delta Air Lines lead mechanic. The tool has practically eliminated the tediousness from what had previously been a very unattractive task.

The pneumatic extractor shown in the accompanying schematic diagram uses normal shop air pressure. A split-type gripper inserted into the tube to be removed is expanded by a tapered tongue which is forced between the gripper halves by air pressure applied to the piston. Sufficient grip is obtained on the inner wall of the tube to permit its removal by means of a sliding knocker which breaks loose the solder around the end of the tube. Release of the air pressure allows the spring-loaded piston to return to its normal position, thereby ejecting the tube from the tool.

Average times established by Delta show that it used to take from eight to ten hours to remove the 2,121 tubes, using a tool provided by the cooler manufacturer. This same job can now be done in an average of four to five hours. Additional savings are being realized by its use with DC-6 type coolers.

Reports from Delta indicate that

other airlines have adopted the idea and are duplicating the tool. The oil cooler manufacturer has been impressed by its design to the extent that a refined production model is now planned.

## New Detergent Speeds Boeing 377 Washing

Aircraft exterior washing methods recently adopted by United Air Lines at its Los Angeles hangar are affording savings up to 67% over procedures formerly used. A four-man crew can now wash and rinse a Boeing 377 in two hours and 45 minutes, whereas past methods with the same crew required eight hours.

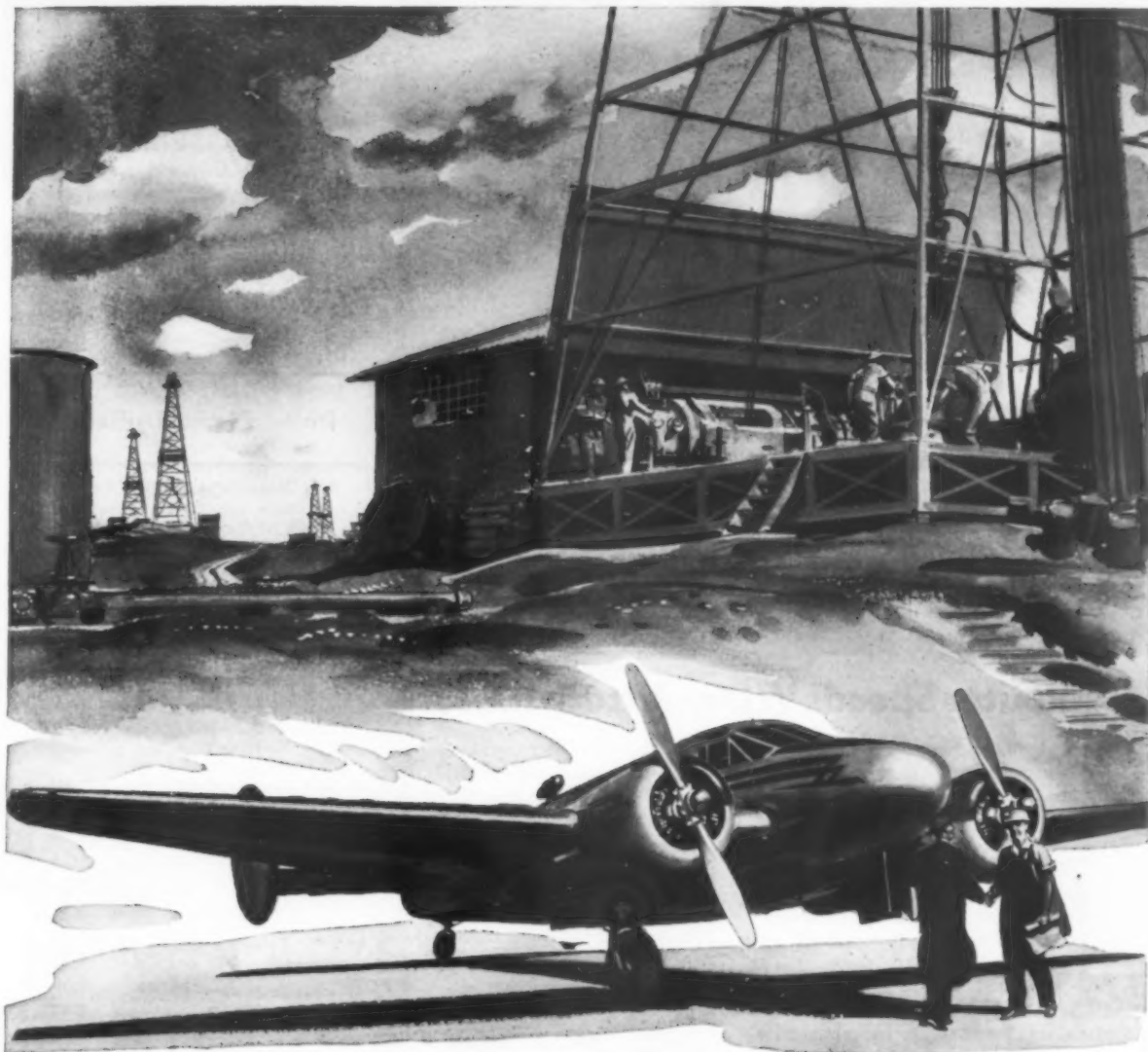
Using a special detergent, Formula 2844, which was developed through the joint efforts of United and the Turco Company of Los Angeles, the wings and fuselage are soaped under 20 psi pressure from a 1/2" hose. A water rinse under 100 pounds pressure from a 1 1/2" hose is then sprayed over the plane. The slow-drying properties of the formula permit application in direct sunlight.

The apron "wash rack" designed by Hector Raymond, UAL chief mechanic at Los Angeles to accommodate the new procedure, includes storm drains. Underground water supply pipes have outlets spaced every 100 feet.



NEW SCRUB-DOWN for United saves up to 67%.





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activity, Beechcrafts are helping America build faster . . . helping America do the *double* job of increasing defense production and keeping consumer goods rolling, too. Learn how a Beechcraft can serve *your* business profitably. Call your Beechcraft distributor. Or write Beech Aircraft Corporation, Wichita, Kansas, U. S. A.



BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS



## New Router Speeds Wing-Attach Rework

A metal router developed by two of Piedmont Airlines' mechanics to simplify the rework of Douglas DC-3 wing-attach angles has resulted in a reduction from 60 to eight man-hours required to do the job.

In an effort to improve the quality of the butt plate fit between the center-section and the outer wing panel, B. W. Linville, airframe overhaul mechanic for PAI suggested the router. A co-worker, J. B. Robertson, aircraft welder and machinist, made it up, including a micrometer head. A surface plate adaptable to either the centersection or outer wing was added, and cutouts large enough to permit working on any of the butt plates were provided.

In accomplishing the rework, a re-

quirement of CAA Airworthiness Directive 52-6-1, a blank butt plate is in-



CLOSE-UP of router.

stalled and the router plate is turned out to equal the thickness of the surface plate. The blank butt plate is then milled down by the router to give exactly the fit desired, within an accuracy of 0.0005".

The unit is powered by a standard type Arco 200 air motor and is equipped with an adjustable machined plate, a micrometer head, and a mill end cutter. In addition to the man-hour reduction, the tool has provided Piedmont with a much better fit than it was possible to obtain when the rework was done by hand.

## Daily Plane Utilization

### DOMESTIC

		March		April
American	2 eng. pass.	5:58	6:28	
	4 eng. pass.	9:29	9:58	
	cargo	4:13	4:22	
B. aniff	2 eng. pass.	6:51	7:13	
	4 eng. pass.	7:23	7:13	
	cargo	5:12	6:54	
Capital	2 eng. pass.	6:45	7:14	
	4 eng. pass.	7:29	7:52	
Caribair	2 eng. pass.	5:00	4:00	
C & S	2 eng. pass.	8:46	9:30	
	4 eng. pass.	8:44	8:52	
Colonial	2 eng. pass.	6:40	6:59	
	4 eng. pass.	5:23	6:41	
Continental	2 eng. pass.	6:59	6:49	
	4 eng. pass.	5:34	5:37	
Delta	2 eng. pass.	7:24	8:04	
	4 eng. pass.	10:15	9:19	
	cargo	5:50	6:05	
Eastern	2 eng. pass.	7:57	7:32	
	4 eng. pass.	10:28	10:44	
Hawaiian	2 eng. pass.	4:13	5:01	
	cargo	3:31	3:55	
Inland*	2 eng. pass.	9:58	...	
	4 eng. pass.	6:33	...	
MCA	2 eng. pass.	5:17	5:56	
	4 eng. pass.	2:06	2:18	
National	2 eng. pass.	7:20	7:20	
	4 eng. pass.	11:00	10:50	
	cargo	5:04	6:00	
Northeast	2 eng. pass.	6:12	6:31	
Northwest	2 eng. pass.	5:39	7:26	
	4 eng. pass.	7:47	8:38	
Trans Pacific	2 eng. pass.	5:19	6:22	
TWA	2 eng. pass.	5:10	5:34	
	4 eng. pass.	7:05	7:23	
	cargo	4:46	5:10	
United	2 eng. pass.	5:43	6:04	
	4 eng. pass.	7:50	8:29	
	cargo	4:00	6:25	
Western*	2 eng. pass.	7:01	7:41	
	4 eng. pass.	8:44	8:40	

\*Western's figures for April include Inland's operations for period April 1-9, effective date of complete absorption of Inland by Western.

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**Three of the 10** pilots who were cited in *AMERICAN AVIATION* (June 23) for outstanding contributions to air transport in 1951 are pictured receiving their certificates. Left, Wayne W. Parrish, editor and publisher, makes the presentation to Capt. Paul F. Untersee of All American Airways (left). Center, L. W. Wulfekuhler, general manager of Lockheed Air Terminal (left), congratulates Capt. Clifford L. Stout, chief pilot of California Central Airlines on his award. At right, Wayne Parrish makes the award to Capt. Walter Jensen of American Airlines.

## United Standardizes Engines and Props

Over the next two years United Air Lines will spend more than two million dollars in the standardization of engines and propellers on its Douglas DC-6, DC-6B, and Convair 340 aircraft.

United's new DC-B's and Convairs are being delivered with Pratt & Whitney CB-16 engines and Hamilton Standard model 43E60 propellers with square-tipped blades. The conversion of their 43 DC-6 aircraft to this equipment involves modification of the CA-15 engines now in use and replacement of the model 43D60 propellers.

The completed program will provide United with a total of 438 engines and 363 propellers including spares, all interchangeable on their three major types of Mainliners.

## Third Proposal Made for CAR Part 40 Revision

The Civil Aeronautics Board recently issued a third proposal for the revision of CAR Part 40, Scheduled Air Carrier Rules, and its consolidation with Part 61. Major changes over previous proposals included:

- **Provisions for operation** over any route between authorized terminals if the operating facilities and procedures are reasonably similar to those on which the operating certificate was predicated. Proposal is intended to facilitate traffic flow in congested areas.

- **Written approval** of Administrator will not be required before deleting or changing facilities on which original certificate was based. Administrator will instead be given authority to require an operator to show adequacy of facilities before and after certification.

- **Requirement** that all aircraft comply with transport category is being eliminated.

- **Emergency evacuation** requirements are being deleted in favor of handling by a separate draft release.

- **Night VFR operations** over routes navigated by pilotage will not require duplicate airborne radio facilities.

- **All crew training** requirements would be strengthened and flight engineer training provisions are added.

- **Minimum altitude rules** from Part 61 are reinserted due to the delay in providing amendment of Part 60 to include them.

In issuing the draft the Board indicated that it does not intend to extend the September 8 deadline permitted for public comment.

## Aft-Facers Planned

Aft-facing cabin seats may be introduced to fare-paying passengers in the United States for the first time in a trial experiment by North American Aviation, a large irregular air carrier, in one of its four-engine aircraft. The company has asked the Burns Aero Seat Company of Burbank, Calif., to design a symmetrical seat which could also be used facing forward without additional expense if the aft-facing installation should prove unacceptable.

## TWA, PAA Up Trans-Atlantic Cargo Flights

Both Pan American World Airways and Trans World Airlines are enlarging their trans-Atlantic all-cargo operations in September.

Starting September 1 Pan American re-inaugurates its once-a-week round trip Douglas DC-4 flight from New York to London, Brussels, Frankfurt, Istanbul, and Beirut. This service supplements PAA's present DC-6A round trip from New York to Frankfurt, via London and Amsterdam.

Commencing September 5, TWA will resume weekly all-cargo flights from New York to Paris. This service had previously been terminated to divert aircraft to the Korean air lift and is now being resumed on a limited basis.

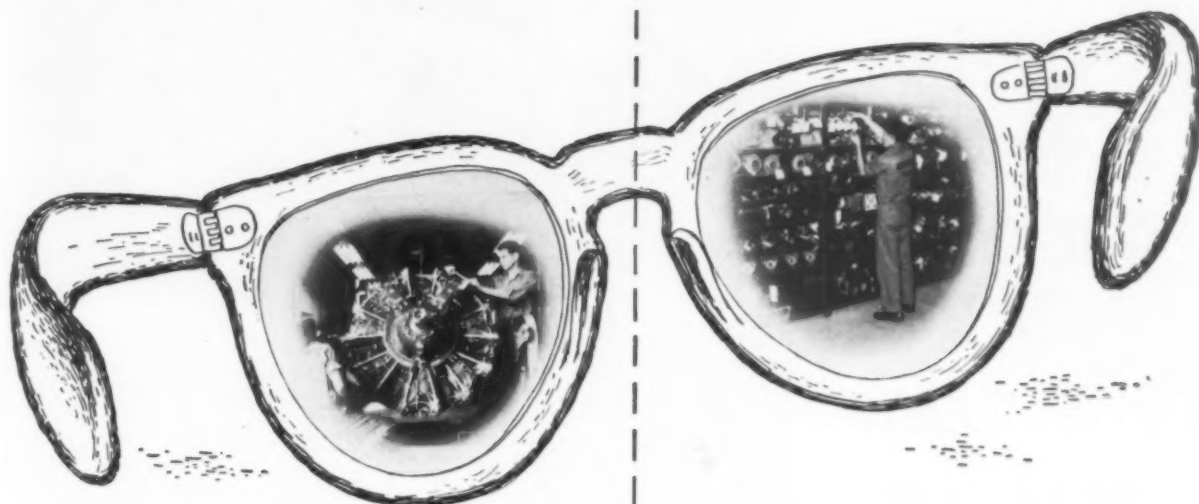
## Colonial Works on Ideas To Cut Loading Damage

Damage to aircraft by cargo loading and other ground equipment seems to be a perpetual problem of the airline operator. Colonial Airlines reports that it is working on the use of a mechanical finger which will depress a micro switch and by solenoid action ground the ignition system of the loader before the damage is done.

Another approach under consideration by Colonial is to use the mechanical finger and micro switch to actuate a solenoid-operated hydraulic valve which will bypass fluid in the loader hydraulic system as soon as the "finger" touches the fuselage.



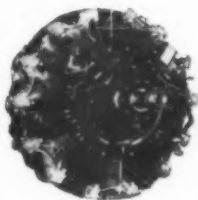
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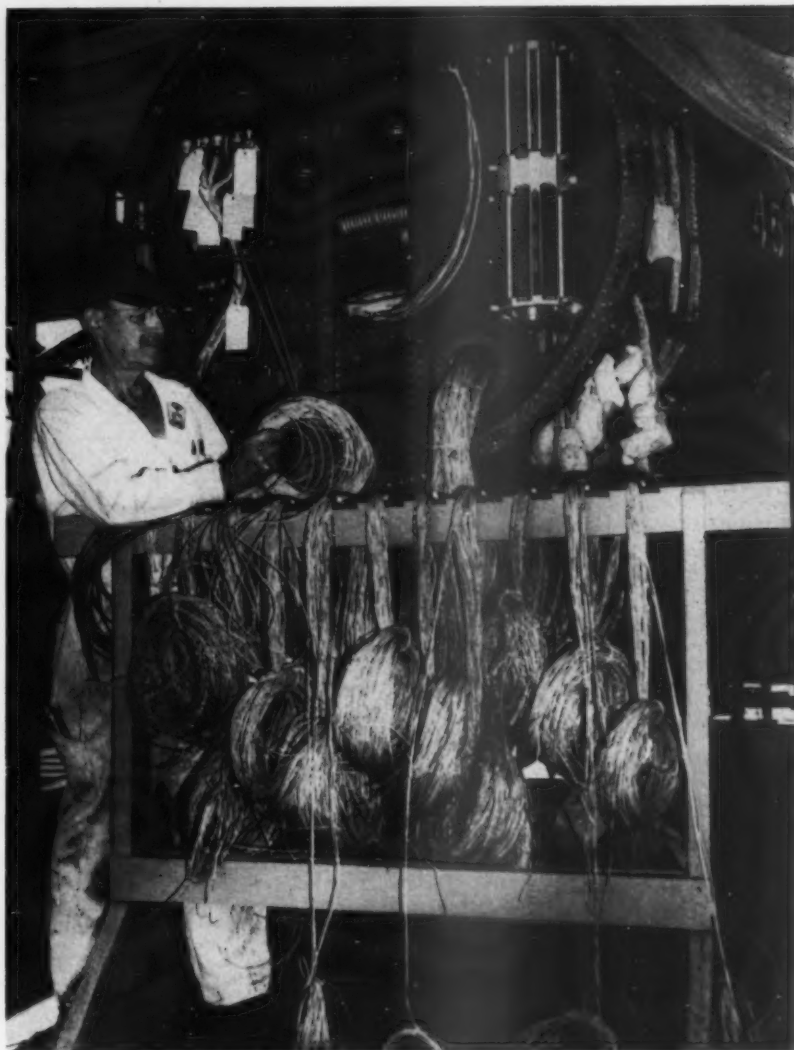
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**Complexity** of a modern twin-jet aircraft is shown in part by above view of wiring in fuselage section of Douglas F3D Skyknight. An estimated 12 miles of wiring goes into the airplane.

### **Fresh-Air Cabin Lamps**

All American Airways is expanding the installation of Westinghouse Odorout lamps to the cabins of all of its Douglas DC-3's as soon as final CAA approval can be obtained. Originally installed in the lavatories of its planes, (AMERICAN AVIATION, May 12) the ozone-generating lamps will serve two purposes in the cabin installation, both supplying a fresh air aroma and illuminating the aisles during night flights.

### **Engine Study Section**

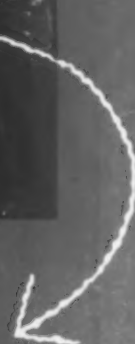
Douglas Aircraft Company has expanded its power plant engineering section to include a permanent analysis

group added to the existing production and design problems groups. The expansion was necessitated by the mathematical complexities of turbine power, which involve a great deal more study than piston engines, according to Carl A. Weise, chief power plant engineer.

### **PAC Gets AF Contract**

Pacific Airmotive Corporation has been awarded an Air Force contract amounting to about \$2,800,000 for reconditioning approximately 100 Douglas C-54's. This initial contract value is expected to increase to \$5,000,000. The Air Force will provide 80 percent of materials and parts, and work will be done at PAC's Chino, Calif., base.

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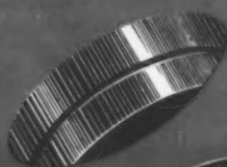
*This Pratt & Whitney Jig Borer used in the manufacture of Wilcox communication equipment has a resettable tolerance of  $\pm 1/10,000$  inch.*

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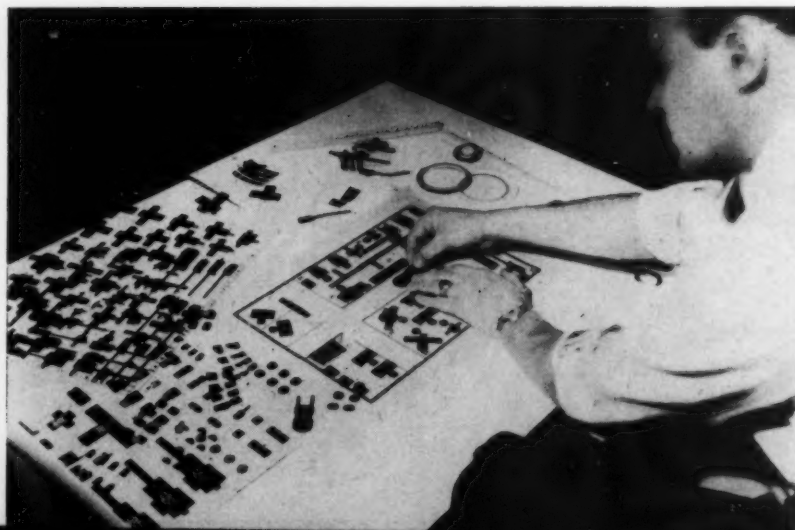




**Lighted Magnifier** for industrial inspection permits speedy detailed examination of materials and parts. Suitable illuminator handles are provided for use with either battery power or 110-volt sources. Address: Bausch & Lomb Optical Co., Rochester, N. Y.



**Motor-Operated Gate Valve** features new method of manual over-ride and complete elimination of rubber or synthetic rubber by use of Teflon, which offers high fuel resistance. Of light weight and compact design, manufacturer claims limit switch operation virtually foolproof. Address: Hydro-Aire, Inc., Burbank, Calif.



**Plant Layout System** called Repro-Templates involves no measuring of equipment, no cutting of templates, drawing, drafting, or lettering. Final layout is reproducible by blueprint, ozalid, or photostat. Materials supplied with master file include 5,000 templates, grid sheets, colored tape, and pressure-sensitive adhesive. Address: Repro-Templates Inc., Oakmont, Pa.



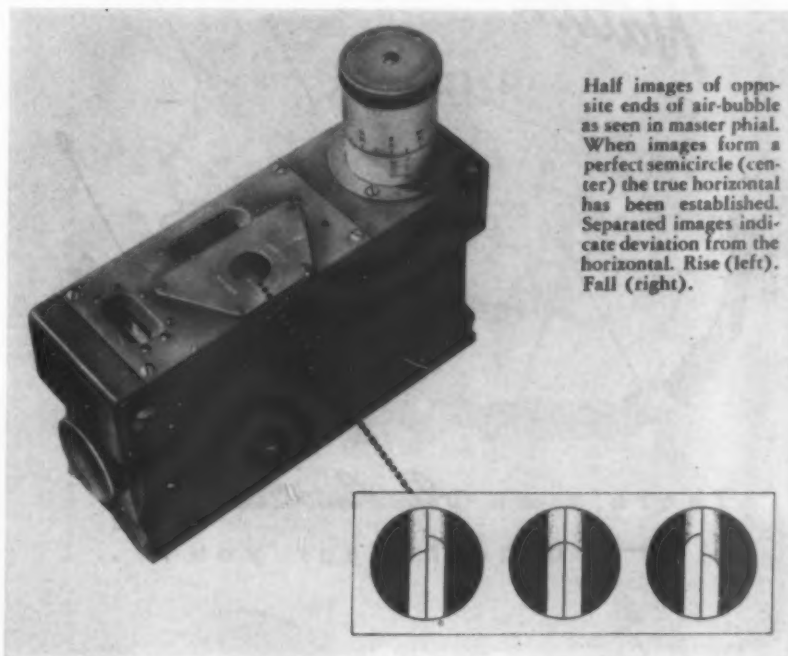
# New Products

## Insulating Tape

A self-bonding electrical insulating tape called Bi-Seal, with many recommended applications in wire and cable splicing and the general electrical maintenance field, has been introduced by the Bishop Manufacturing Corporation.

Available in 30-foot rolls of standard  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", and 1" widths, Bi-Seal is said to be the only self-bonding tape available today. It features moisture resistance, low temperature flexibility, and superior aging characteristics either in storage or after application. Once installed, it cannot be unwrapped or delaminated.

Address: Bishop Manufacturing Corp., 10 Canfield Road, Cedar Grove, N. J.



Half images of opposite ends of air-bubble as seen in master phial. When images form a perfect semicircle (center) the true horizontal has been established. Separated images indicate deviation from the horizontal. Rise (left). Fall (right).

## Optical Level

An optical level for use with air-frames, jigs, and lapping plates has been announced by the F. T. Griswold Manufacturing Co. Measuring flatness, straightness and parallelism by means of three bubble phials and two prisms, it reads deviations

from the horizontal of 0.00001" per inch of length. A graduated micrometer thimble and barrel provide easily read measurements.

Address: F. T. Griswold Mfg. Co., W. Lancaster Ave., Wayne, Pa.

## Hard-to-Reach Inspections

An inspection instrument, called the Testa Borescope, for magnified and lighted inspection of inaccessible locations has been developed by the Testa Manufacturing Co.

Used for such purposes as inspection of the interior wall surfaces of engine cylinders through the spark plug openings, the Borescope measures  $\frac{1}{2}$ " in diameter and is available in lengths from 20" upward. In use, the instrument provides a magnified and brightly illuminated field of vision 30° at right angles to the point of access.

Address: Testa Manufacturing Co., 418 South Pecan St., Los Angeles 33, Calif.

## Stethoscope

An electronic stethoscope called the Ac-Detec, for locating friction noises in bearings, pistons and gears, has been made available by the American Name Plate & Manufacturing Co.

The portable unit uses a metal probe from which noise impulses are transmitted through an amplifier to earphones. Power source is a 67½ volt B battery and two

1½ volt A batteries. Literature available on request.

Address: Anco Instrument Division, American Name Plate & Mfg. Co., 4254 West Arthington St., Chicago 24, Ill.



## Tachometer

Heavy duty tachometer heads for gauging speeds of extruders, welders, conveyor belts, and similar installations have been introduced by the Metron Instrument Company.

Speeds are measured up to 199 rpm for full scale indication and no damage is incurred at overspeeds of two to ten times the rated values.

Complete enclosure of all working parts and terminals offers protection from dirt, abrasives, and liquids. Permanent lubrication is employed throughout.

Address: Metron Instrument Co., 432 Lincoln St., Denver 9, Colo.

## Anchor Nut

A redesigned floating anchor nut which is said to provide a 1.3-pound-per-thousand-piece weight saving over earlier types has been introduced by the Elastic Stop Nut Corporation of America.

The new nut which meets AN366 requirements, features an offset shoulder on the anchor lug, preventing interference between the nut and the attaching rivets, and thereby assuring full floating action. The redesign has permitted ESNA to provide a nut with the same overall dimensions as its non-floating types.

Address: Elastic Stop Nut Corporation of America, 2330 Vauxhall Road, Union, N. J.

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### Angle Adapter

An angle adapter to facilitate blind riveting has been announced by Huck Manufacturing Co. When used with either the No. 93 Air Riveting Tool or the No. 94 Hand Riveting Tool, the adapter simplifies assembly of deep channels and other hard-to-reach rivet locations.

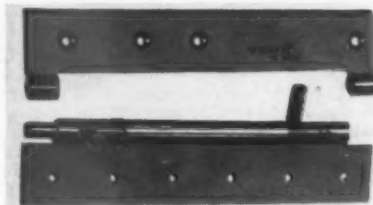
Address: Huck Manufacturing Co., 2480 Bellevue Ave., Detroit 7, Mich.

### Aluminum Cleaner

A non-foaming, non-corrosive detergent for use in power equipment for cleaning aluminum, anodized aluminum, and magnesium parts has been placed on the market by Kelite Products, Inc.

Called Kelite PWB No. 81, the new detergent is a powder soluble in water. Said to remove all types of soil, it features removal of various aluminum company ink markings in about one minute.

Address: Kelite Products, Inc., 1250 North Main Street, Los Angeles 12, Calif.



### Instant-Release Hinge

An instant-release hinge of 24ST dural is offered by the Burklyn Company. Available in two- to 12-inch lengths, the hinge has been used for attaching such items as instrument panels, radio and electronic equipment, pilot curtains, inspection plates, and hatch covers.

Address: Burklyn Company, 3429 Glendale Blvd., Los Angeles 39, Calif.

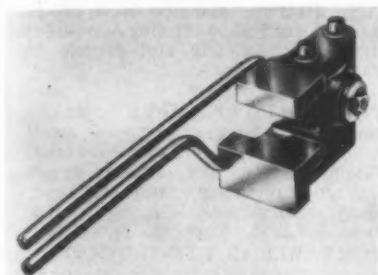
### Strong Brake Lining

A brake lining said to offer nearly ten times the strength of conventional woven brake lining has been developed

and patented by the Russell Manufacturing Company.

Fabricated by methods completely new, the lining is made of strands of asbestos web which are saturated and surrounded with a special frictional binder material. The mass is then compressed under 300 tons pressure, effecting a density of 120 pounds per square foot. Manufacturer of the new lining claims freedom from water absorption, since frictional heat evaporates surface moisture, allowing almost immediate braking recovery.

Address: Russell Manufacturing Co., Middletown, Connecticut.



### Small-Parts Jig

A self-clamping jig for the accurate drilling of small parts, called the Jr. Mijit Precision Drill Jig, has been announced by the Esco Engineering Corporation.

Adapted to part sizes up to  $1\frac{1}{2}$ ", the jig measures  $1\frac{11}{16}$ " x  $2\frac{11}{16}$ " and stands  $2\frac{1}{4}$ " high in closed position. Interchangeable bushing plates eliminate the necessity of purchasing a new jig when changing to a new part.

Address: Esco Engineering Corp., 1940 E. Woodbridge St., Detroit 7, Mich.



### Miniature Solenoid

A miniature solenoid for use in the fuel-level control system of single-point fueling installations has been announced by the Lafayette Engineering and Development Company.


Weighing slightly over  $\frac{1}{4}$  lbs. and measuring  $1\frac{3}{8}$ " overall height, solenoid rating is 2 lbs. pull at  $\frac{1}{8}$ " stroke at 18 volts, dc.

Address: Lafayette Engineering and Development Company, 9675 Santa Monica Blvd., Beverly Hills, Calif.

AUGUST 18, 1952



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Aircraft Engine Division  
MUSKEGON, MICHIGAN

## Technical Literature

**WELDING:** "Tool & Die Salvage Welding," a 64-page, well-illustrated book, is the fourth in a series of "How-To-Weld-It Better" manuals being circulated by Eutectic Welding Alloys Corp., 40-40 172 St., Flushing, N. Y. Over 100 photos, drawings, charts, and diagrams are used.

**CARBON STEEL TUBING:** New data card TDC 142 offers condensed technical information for engineers and designers involved with fabrication of equipment operating at elevated temperatures and pressures. Covering mechanical and physical properties, upsetting, swaging, flanging, expanding, bending, and welding of seamless and welded carbon steel tubing, it is circulated by Tubular Products Division of The Babcock & Wilcox Co., Beaver Falls, Penna.

**AIRCRAFT OXYGEN EQUIPMENT:** Scott Aviation Corporation, Lancaster, N. Y., has prepared Catalog H33C on aircraft oxygen equipment, which includes a condensation of C.A.R. oxygen breathing requirements, as well as explanations of the need for oxygen in airline, corporate, and private aviation.

**BRONZE WELDING ROD:** Leaflet TIS 997-P describes EutecRod 148FC, new bronze welding rod with a special flux coating, developed by Eutectic Welding Alloys Corporation, 40-40 172 St., Flushing, N. Y. The product is said

to eliminate most pre-welding preparations required by conventional rods.

**FORK LIFT TRUCKS:** Bulletin #1570 describes Diesel or gasoline-powered "FT"-series fork lift trucks, available in capacities from 3,000 to 7,500 pounds and manufactured by The Buda Co., Harvey, Ill.

**TEST STANDS:** Bulletin 1749 features seven modifications of Aero Test-Stands and ways of testing components. Available from U. S. Electrical Motors, Inc., 200 East Slauson Ave., Los Angeles 54, Calif.

**CABIN TEMPERATURE CONTROL SYSTEMS:** Four page Bulletin F-5221, published by Barber-Colman Co., Rockford, Ill., features cabin-temperature control systems for both cycling combustion heaters and proportioning exhaust heat and ram air.

**AIRCRAFT BATTERIES:** Complete line of Flying Rebats is set forth in a three-color, 12-page catalog, prepared by the Reading Batteries, Inc., Reading Pa. Construction features of the Rebat aircraft batteries are explained and supplemented with cut-away views and specification charts.

**OVERHEAD RAILS:** "Cleveland Tramrail Engineering and Application Data" is a revised edition of Booklet

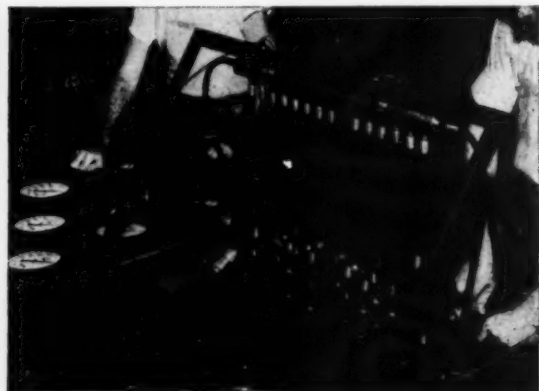
#2008-H, issued by the Cleveland Tramrail Division, The Cleveland Crane & Engineering Co., Wakliffe, Ohio. New material incorporated includes track design, track stresses, and solution to track peening.

**HOBBING MACHINES:** Michigan Tool Company, 7171 E. McNichols Rd., Detroit 12, Mich. sets forth details of its new 1458-A Michigan Ultra Speed Gear Hobbing Machine in a 12-page bulletin, including tooling layouts for hydraulic clamping, and general machine specifications.

**PORCELAIN ENAMEL:** "Porcelain Enamel to Handle the Tough Jobs" is a 16-page booklet put out by The Erie Enameling Co., Erie, Penna., detailing the use of porcelain enamel in industrial application.

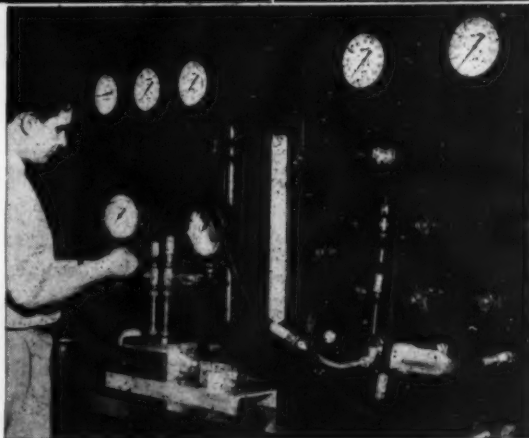
**PORTABLE CUTTING TOOLS:** The Manco Manufacturing Co., Bradley, Ill., describes its line of portable cutting tools in a two-color, four page catalog, using photographs and complete specifications for each model.

**AIRPORT LIGHTING:** Westinghouse Corp., 306 Fourth Ave., Pittsburgh 30, Pa., presents details on lighting equipment selection and electrical requirements in a new 18-page booklet. Several typical wiring diagrams for runways and taxiways are outlined.



**Greer Dynamic Hose Test Bench** tests statically one to six hose lines or similar components at pressures to 25,000 psi. Covered burst chamber is provided for operator's safety during test. The photo above shows many hose assemblies being tested simultaneously.

**Greer Dynamic Hydraulic Tester** checks all hydraulic accessories except pumps. Operates with variable volume and pressure dynamic tests to 5,000 psi, static tests to 15,000 psi, flow rates to 16 gpm. In photo at right, check valves for tandem boost of FTU-3 Cutlass are being tested.



## Why Chance Vought Tests with Greer

Like other aircraft builders, Chance Vought relies upon the accuracy and dependability in Greer Precision Test Equipment

No one knows the urgency of accurate testing better than the men who build the famous Cutlass and Corsair (photo at left). It is a fine tribute to the Greer reputation that Chance-Vought chooses Greer equipment for vital testing operations.

Again and again, leaders in the aviation field turn to Greer for maintenance and test equipment. Pioneers in this field, Greer has standardized its machines until you can order them for most purposes right out of a catalog. For out-of-ordinary requirements, a staff of creative engineers is ready to talk with you at your convenience.

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# Research Rides a Rocket

*The Naval Research Laboratory's Viking rocket research at White Sands Proving Grounds, N. M., hunts facts, figures and formulas in the upper atmosphere.*

**H**URTLING far into the blue, Naval Research Laboratory rockets ask questions of the earth's upper atmosphere . . . flash back the answers needed to guide the designers of tomorrow's piloted and pilotless super-altitude systems for peace or war. What are the pressures and temperatures of the earth's atmospheric layers . . . the high-altitude changes in the earth's magnetic field affecting navigational instruments . . . the alterations in radio waves caused by the ionosphere . . . the effects of sun spots on communications equipment out beyond the filtering effects of the earth's heavy atmosphere?

Martin Viking rockets play a major role in this high-altitude flight research program. Last summer, the Viking cracked the world's altitude record for single-stage rockets . . . nosing 136 miles into the heavens at a top speed of 4100 m.p.h. Now, an even more powerful Viking is being readied for launching. The Martin Company is proud to be a partner with the Naval Research Laboratory in these vital activities . . . helping to prove that America's most valuable secret weapon is its scientific leadership! THE GLENN L. MARTIN COMPANY, Baltimore 3, Md.

## Martin

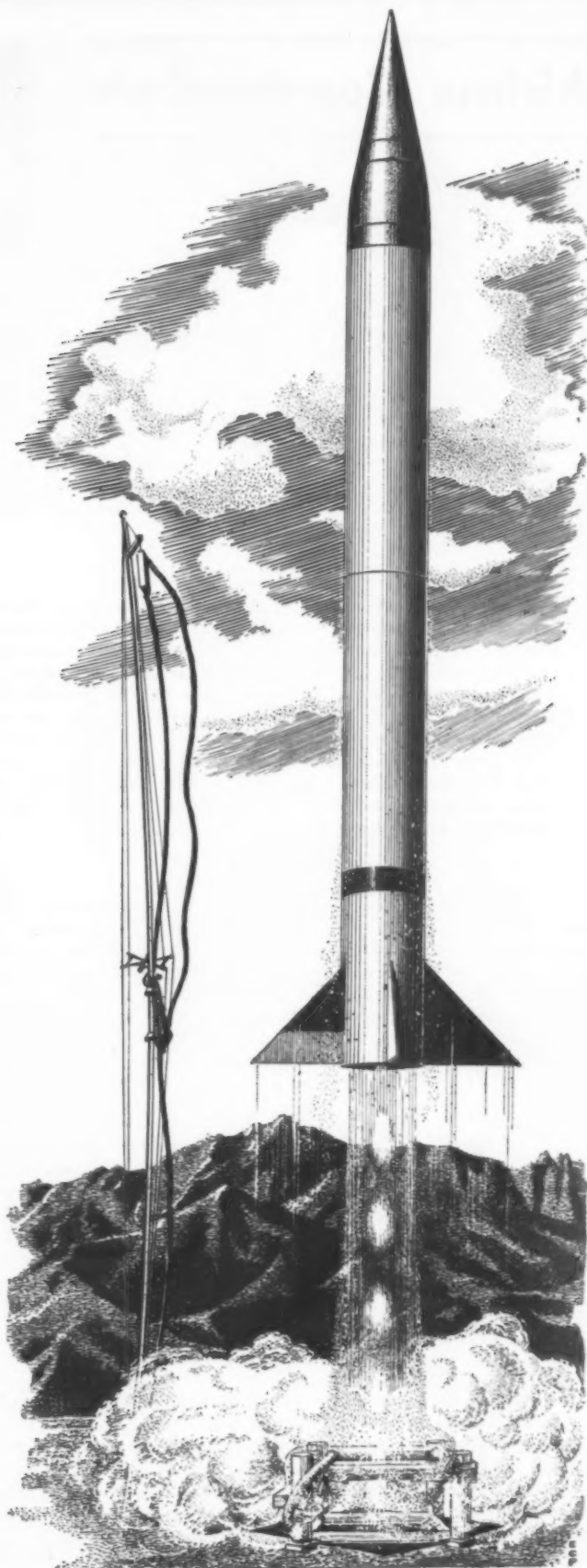


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# Airline Commentary

By Eric Bramley



YOU hear some funny stories about the earlier days of the CAB and CAA in Alaska. In those days, if the operators didn't get the routes they thought they should have, CAB heard about it in no uncertain terms. The all-time classic was the statement of exceptions filed by Bob Reeve to the recommendations of CAB Examiner Raymond Stough in the Board's first Alaskan route case (1940). We heard so many people chuckle about this statement that we secured a copy of the now-rare document. Reeve, now president of Reeve Aleutian Airways, was a small operator who wanted certain routes that Stough didn't see fit to recommend. So Reeve, a tough cookie, sat down and expressed his feelings to the Board in eight red-hot pages. (We shall make this statement available to our lawyer friends who think they know how to write strong briefs.)

His statement referred to the examiner's report as "Stough's Folklore of Alaskan Aviation," and described Stough as a "sedentary salaried employe of the Government, ensconced in a safe, secure government position." He was particularly enraged by the examiner's comment that public convenience and necessity did not require air transportation beyond the Copper River area. "Gentlemen," Reeve said, "this one statement is just about as feeble a fiction as the examiner has expounded as yet. Gentlemen, if we pilots who made Alaska what it is today had waited until the outlying bush and mountain 'required' airplane transportation by virtue of public convenience and necessity, this Territory would be today just about nothing but a worthless wilderness.

"The oldtime Alaskan operator who made this country what it is was a man who made business where there had never been business before; he was a man who in most instances was forced to hustle and rustle or starve. It was the rustler who survived. Listen, I have deliberately gone prospecting with my airplane, and discovered, staked, and sold gold mining property at far below its actual value for the sole purpose of building up airplane transportation business to that district. . . . Gentlemen, suppose I had waited until that district . . . required service by virtue of public convenience and necessity? It would still be a wilderness. . . .

"Gentlemen, the whole fiasco so incensed and outraged me that, several days later, preceiving that under the rules and regulations of Stough's Folklore of Alaskan Aviation that Reeve Airways of Valdez was a doomed organization, and still having a high moral obligation toward my dependents, coupled with a firm resolve to die independent, I moved my family and activities, lock, stock and barrel, to a new base of Fairbanks . . . and am engaged in my old occupation of general charter operator. . . . I am making an adequate and remunerative success—child of adversity even though my venture has been.

"And with regard to Mr. Stough's recommendation for my future, I regret to advise the Civil Aeronautics Board, with due respect for them, that I find it impossible to subordinate my plans for the future to accord with Mr. Stough's scheme for my regimentation, nor do I propose to passively submit in the future to any similar scheme or attempt at regimentation which shall conflict with my constitutional rights to make a decent living as long as I maintain my flying equipment in good condition and comply with pilot regulations."

And that, gentle readers, gives you some idea of how Alaska took to regulation!

## People

### ADMINISTRATIVE

**William W. Weesner**, secretary and a director of Lake Central Airlines, has been named vice president-sales of the company. **Donald S. Getchell** was promoted to administrative assistant, an advancement from general traffic and sales manager.

**John L. Weller**, an assistant vice president of Trans World Airlines since April, 1951, has been elected a vice president of the company.

**Felix E. Larkin**, an executive of W. R. Grace & Co., has been named a director of Pan American-Grace Airways.

**Roy George Stewart**, advertising production manager of United Air Lines since 1948, has been named advertising manager for Braniff Airways.

**Kenneth C. Gunter** appointed director of advertising and public relations for Resort Airlines. He was formerly sales promotion and direct advertising consultant to TWA, and general advertising manager of Pan American World Airways.

**Colin Hugh McIntosh**, former vice president-operations of All-American Airways, has opened an office for consulting in air transportation at 1417 K Street, N. W., Washington, D. C.

**Rexford E. Bruno**, 12 year veteran in United Air Lines finance administration, has been elected comptroller succeeding Carroll E. Blanchar, resigned.



Bruno

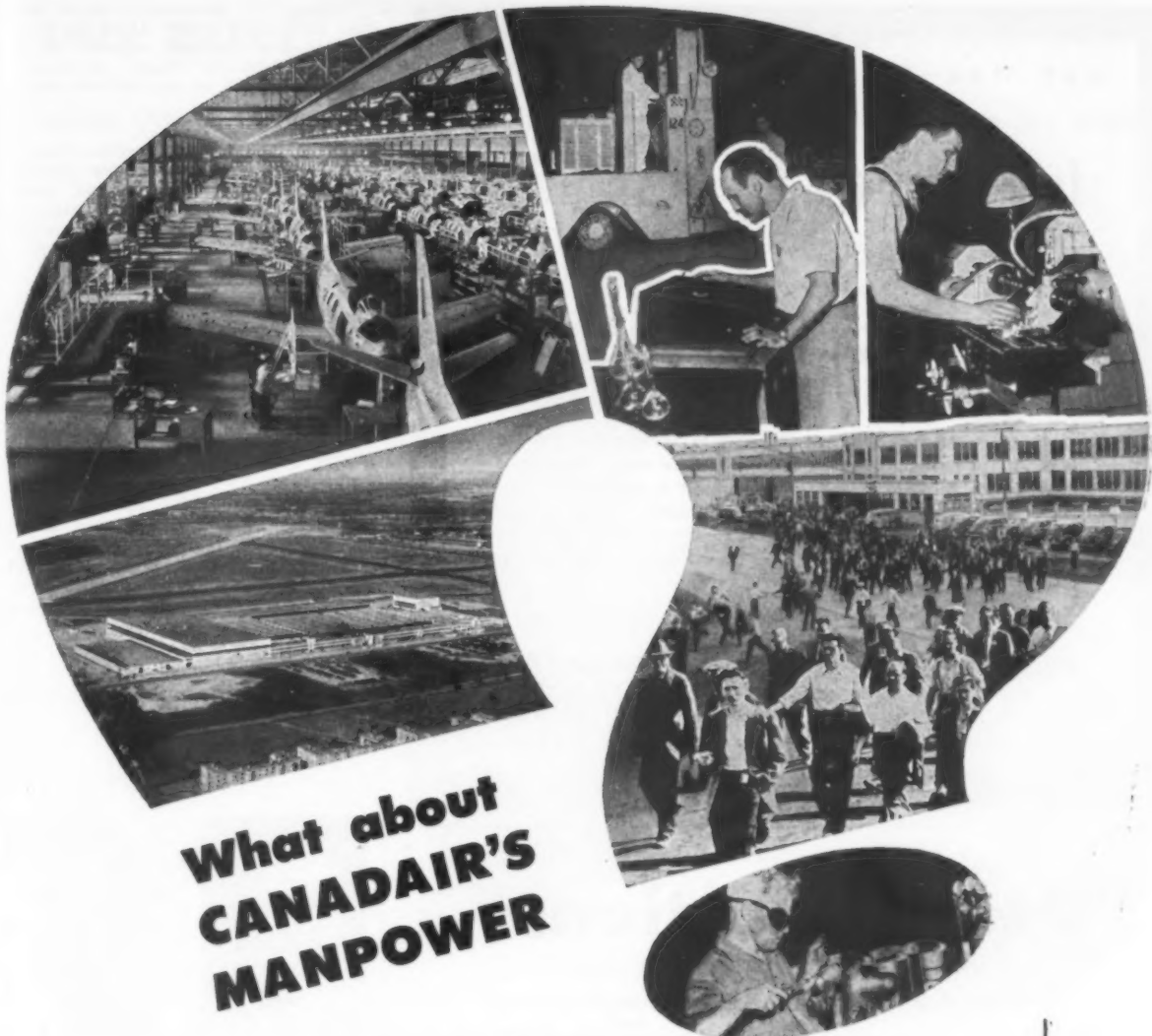


Horne

### OPERATIONS-MAINTENANCE

**H. Horne** has been named system chief flight engineer for Trans-Canada Air Lines, and **Capt. Bert Terlice** appointed check pilot for TCA's international service.

**J. N. Mitchell** has been transferred by Eastern Air Lines from Philadelphia to New York's Idlewild Airport as station manager. . . . **H. K. Daisey** succeeded Mitchell as station manager at Philadelphia. . . . **W. F. Barranger**, formerly EAL's general station manager-New York area, becomes station manager at Newark.



## What about CANADAIR'S MANPOWER

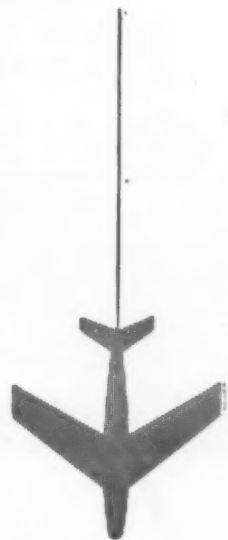
The steady, reliable Canadian 'manpower pool' is without question one of the key factors in Canadair's ability to produce planes.

Canadair is fortunate in being located in an area abundant in skilled workmen . . . workmen who are strongly rooted in their traditions of home and province . . . intelligent, conscientious craftsmen . . . typical of the thousands who man the Canadair assembly lines *today*—and who will be on the job *tomorrow*.

Canadair has gained global recognition through its workers . . . through the honoring of delivery dates . . . through the building of aircraft rendering the maximum of service.

*Canadair*  
LIMITED, MONTREAL, CANADA

A subsidiary of  
GENERAL DYNAMICS CORPORATION  
(Formerly: Electric Boat Company)  
New York, N.Y. — Washington, D.C.



CAS2-15UBT

## WHY THE DISTRIBUTOR? PART 11

### Load Lifters



In addition to the many direct savings enjoyed by airlines buying from SAC Sales, there are numerous benefits of a more indirect nature. These "load lifters" include the saving of insurance on items both in transit and in stock; the reduction of inventory when SAC Sales has your supplies on its own shelves; the lessening of paperwork by ordering several lines from this one source and by letting SAC Sales handle freight bills and follow-ups, and a related cutting-down of the burden of your personnel.

SALES DEPARTMENT  
SOUTHWEST AIRMOTIVE COMPANY  
LOS ANGELES • DALLAS

MEMBER AVIATION DISTRIBUTORS & MANUFACTURERS ASSOCIATION

Norman D. Morhouse, engineer with Pan American's Latin American Division, is now assistant aircraft service superintendent, in charge of maintenance on DC-4's, at the airline's Miami base.

E. G. Lehnert has become Chicago station manager for Northwest Airlines replacing M. C. ("Hank") Lund, transferred to Detroit in the same capacity. R. L. Jordan, formerly NWA Detroit station manager is now the airline's Washington, D. C., station manager.

Ben Bowie recently appointed Southern Airways' station manager at Vicksburg.

Harry L. Dyer is now supervisor of parts and equipment sales for Trans World Airlines at Kansas City. He replaced Wally Bush, resigned.

Fred L. Gau, chief flight dispatcher at Chicago for United Air Lines, named flight dispatch manager for the company at Denver, replacing Capt. Frank Swain who has returned to flying duties. A. Z. Grutch succeeds Gau as chief flight dispatcher at Chicago.

Clark M. Kee, Jr., is now station manager at San Diego for California Central Airlines.

## TRAFFIC & SALES



Dietrich



Bartow

Bradley P. Bartow and Daniel L. Dietrich have been named to head the district traffic and sales offices for Continental Air Lines in El Paso and San Francisco, respectively. Bartow transfers to El Paso from San Francisco, while Dietrich joins Continental from TWA where he had been agency and interline sales supervisor in San Francisco.

Arthur Ayres newly appointed as regional director in Los Angeles for Pan American World Airways and its affiliate, Compania Mexicana de Aviacion.

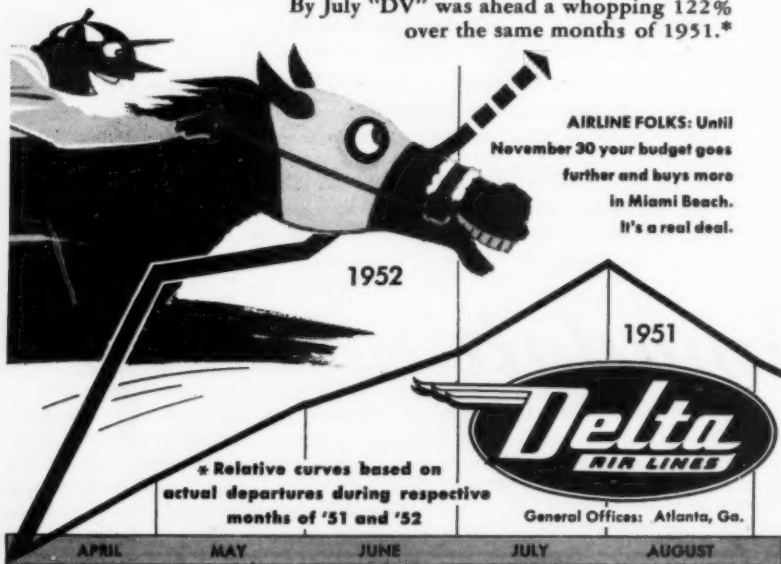
Robert Strong is now public relations and advertising manager for Slick Airways. Formerly sales manager for Slick at Dallas, Strong is now based at Burbank.

A. J. Ramondt, district sales manager for Philippine Air Lines at Lydda, Israel, has been named to a similar position with the airline at its new offices in Frankfurt, Germany.

## "Delta Vacations"

out in front (122%) in Home Stretch  
Miami Beach • Havana • Nassau • Jamaica

When the Summer Vacation Derby started a few months ago, agents eagerly watched and saw "Delta Vacations" romp to an early lead. By July "DV" was ahead a whopping 122% over the same months of 1951.\*





# THIS NEW **AEROTHERM** LUXURY PASSENGER SEAT

gives you a comfortable ride by day and a refreshing sleep by night



The Slumberryde\* was designed for Pan American World Airways' new DC-6B Clippers. It provides the ideal seating combination for relaxing day and night air travel. Cushioned with thick foam rubber, it provides body-fitting comfort in any position. Requires less space than conventional berths for overnight flights.

Flexibility is an important feature of the Slumberryde. It is adaptable to a wide variety of seating arrangements, can be faced forward or aft, on either side of the ship. This seat is particularly adaptable to a unique type of installation that permits attaching, detaching, or spacing the seats with ease to meet pay-load requirements. The back folds forward to

simplify handling and to facilitate passenger-cargo operations.

AEROTHERM seats are designed so that small detail parts, rather than whole major assemblies, can be replaced at scheduled stops quickly, easily, and inexpensively. The Slumberryde is contoured to fit the Douglas DC-4 and DC-6, Boeing Stratocruiser, and Lockheed Constellation.

Thousands of AEROTHERM seats now in use by many famous airlines indicate the ability of our designers to help solve your aircraft seating problems. Why not write or call our representative nearest you today for engineering aid or for AEROTHERM literature.

\*Reg. T.M. Applied for.

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John S. Hammond, Jr., 25 Edwards St.

Stanley R. Brett  
John E. Freeman & Assoc., 1616-F 43rd St.

DAYTON 3, OHIO  
Jay Engr. Co., 1517 East 3rd St.

LOS ANGELES 43, CAL.  
Fornas Engr. Co., 4545 West 62nd St.

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## PROJECT ENGINEERS

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You can count on  
**TLC\***  
when you fly  
**WESTERN**

**\*TENDER LOVING CARE**

We're a real Western outfit—and we know how to pamper our passengers. We'll fly you over America's most spectacular scenery...we'll feed you like a maharajah...and we'll throw in a full measure of friendly Western hospitality!



Paul Parsons, Jr., has been transferred by Braniff Airways as district sales manager at Tulsa to San Antonio in the same capacity.

John R. Robinson, Augusta sales manager for Delta Air Lines, has transferred to Jacksonville replacing W. K. Anderson, resigned. Tom Hunter-Reay, Miami sales rep., becomes sales manager at Augusta on September 1. Morley Alexander has returned from military leave to his Delta post as Birmingham sales manager.

Leroy A. Bressler, 10-year veteran with Pan American World Airways, is the airline's new airport traffic manager at New Orleans. Bressler replaced John Middleton, who has been transferred to Panama's Tocumen Airport in the same capacity.

A. D. Yawn promoted by Southern Airways to regional traffic and sales manager in Atlanta, replacing Edwin W. Clapp, resigned. Marvin W. Nolan succeeds Yawn as Atlanta district traffic and sales manager, shifting from the Memphis district which has been taken over by R. E. Kale, formerly Greenville station manager. Harold Goodson, Valdosta, Ga., station manager, named to head a newly created traffic and sales district at New Orleans.



The following airline employees recently completed 20 years or more of service in the industry with the same company:

- Andre A. Priester, Pan American World Airways. Vice president and chief engineer, New York. 25 years.
- L. E. Koerner, Northwest Airlines. Manager, maintenance division, St. Paul. 24 years.
- William Hoffman, Northwest Airlines. Foreman, St. Paul. 24 years.
- Fred L. Gau, United Air Lines. Flight dispatch manager, Denver. 24 years.
- Salvador Borja, Pan American World Airways. Senior storekeeper, Brownsville. 20 years.
- Toolie, Pan American World Airways. Maintenance shift foreman, Piarco Airport, Trinidad. 20 years.
- Elmer Partain, American Airlines. Airfreight agent, Cleveland. 20 years.
- Bunk Warnock, American Airlines. Manager of operations, El Paso. 20 years.
- W. P. Dahnke, Trans World Airlines, Kansas City. 20 years.
- A. T. Roth, Trans World Airlines, Kansas City. 20 years.
- J. E. Sturgess, Trans World Airlines, Kansas City. 20 years.
- F. J. Mandl, Trans World Airlines, Kansas City. 20 years.
- J. F. Wehner, Trans World Airlines, Kansas City. 20 years.
- C. U. Rosenbaugh, Trans World Airlines, Kansas City. 20 years.

AMERICAN AVIATION

## Examiner Finds Lake Central 'Not Fit'

A RECOMMENDATION against renewal of Lake Central Airlines' local service certificate has been submitted to CAB by Examiner R. Vernon Radcliffe. The examiner found that Lake Central is "not fit, willing and able" to perform the air transportation authorized by its certificate and proposed in various pending applications.

Radcliffe's report was the outcome of charges filed against Lake Central's management by CAB's enforcement officers in which the "integrity" of the management was questioned. Examiner found that two of the charges involve matters of "proven substance bearing seriously upon the integrity of management."

First, he said, "involves a gentlemen's agreement intended to benefit John V. Weesner to the extent of a new Cadillac automobile in consideration of the lease of two C-46 aircraft by Lake Central from Air America."

Second, he added, involved a Lake Central plane stationed at Detroit and used for "charter" trips on Nationwide Airlines' intra-state route. Motive alleged was to operate the plane under safety rules covering "charter" flights and "to avoid compliance with the more extensive and more costly safety

requirements" covering scheduled interstate airlines.

The examiner also doubted the financial ability of the line not only to operate over proposed new routes, but to continue over presently certificated routes. This drew a public reply from Lake Central's president John V. Weesner who said, "Lake Central and Nationwide have assets totalling approximately one-half million dollars. The normal operating liabilities incurred in a business of this scope and nature are a long way from reaching the half-million total."

Weesner said the charges against the integrity of Lake Central are of "questionable accuracy and validity." He termed Radcliffe's report as "one man's opinion."

Meanwhile, reports were circulating of new management groups ready to buy out the Weesner interests if and when CAB agrees with its examiner. One such group is said to be headed by James G. Ray, prominent Washington, D. C., aviation consultant closely affiliated with the local service industry for years.

There was no confirmation of these reports, however, pending final action by CAB on the renewal application.

## Central Gets 5-Year Renewal Recommended

Prospects of continued increases in traffic and improvement in financial operating results for Central Airlines led CAB Examiner Herbert K. Bryan recently to recommend a five-year renewal of Central's local service airline certificate.

Bryan also recommended various route changes for Central, including (1) eastward extension of the Dallas-Texas segment to Hot Springs and Little Rock, (2) a new segment between Oklahoma City and Tulsa via Shawnee and Stillwater, and (3) elimination of several uneconomic points.

When these changes are made, Bryan further suggested that American Airlines' service at Texarkana be suspended and that Pine Bluff and El Dorado be eliminated from Chicago & Southern Air Lines' certificate.

Central's original certificate expired May 15, 1951, but operations have continued pending outcome of its renewal bid. A year ago, the line switched to twin-engine equipment for the first time and Bryan emphasized in his report to

CAB that expenses for the first six months were below the average of those for the first six months of operations of other local lines utilizing twin-engine aircraft.

Next step for Central is oral argument before the Board in the latter part of September.

## CAB to Weigh Both Colonial Merger Offers

Civil Aeronautics Board has decided to consider jointly the possibilities of merging Colonial Airlines into National Airlines or Eastern Air Lines. A Colonial-National merger was being probed by CAB on its own initiative. The Colonial-Eastern deal is a voluntary proposal on which managements of both lines have reached agreement and requested CAB approval.

Before Colonial and Eastern had agreed to merge, however, Eastern had asked CAB to expand the Colonial-National merger investigation to consider Eastern as a possible partner for Colonial. After their pact was signed, neither Colonial nor Eastern asked that their agreement be consolidated with

the investigation involving National. But CAB held the public interest requires a look into all possibilities.

A prehearing conference was held early in August with hearings likely to start in the fall.

## TWA Asks Restoration of Half Mail Rate Cut

Trans World Airlines, which recently took a two-thirds cut in its temporary trans-Atlantic mail rate, has asked the Civil Aeronautics Board to reconsider and restore one-third or about \$3 million annually. This would bring annual pay for the international operation of TWA up to about \$6,800,000 total.

Earlier this year, CAB reduced the pay from \$9 million to about \$3.3 million, alleging that when final rates are fixed TWA otherwise may be forced to refund "excessive amounts."

TWA claims, however, that the approximate \$6 million cut "has caused a serious impairment of its cash position" and views as even more serious the decline in working capital which must result from the same cause.

### CAB DECISIONS

• **Trans-Texas Airways** authorized to suspend operations at Palestine, Texas, for duration of current local service certificate for Route 82. Point is between Tyler and Lufkin on TTA's Dallas-Beaumont segment and was dropped because of poor traffic results.

• **Wien Alaska Airlines** final mail rates proposed for first time reflecting \$2,280,000 total pay for operations through December 31, 1951, and new annual pay of \$1,047,384, beginning January 1, 1951.

• **Ozark Air Lines** granted exemption for duration of certificate to serve Columbia, Mo., in lieu of Jefferson City, Mo.

### CAB CALENDAR

**Aug. 25**—Hearing in Cuba Aeropostal, S. A. Investigation. Washington. Docket 5487.

**Sept. 3**—Hearing in Reopened North Central Route Investigation Case. Washington. Docket 4603 et al.

**Sept. 3**—Hearing in Large Irregular Air Carrier Investigation. Washington. Docket 5132 et al.

**Sept. 4**—Oral argument before the Board in CAA vs. Robin Airlines d/b/a North Continent Airlines. Washington. Docket SR-6-427.

**Sept. 8**—Hearing in Trans-Atlantic-Final Mail Rate Case (Pan American and TWA). Washington. Docket 1706 et al.



## Summary of U. S. Domestic Airline Revenues and Expenses for May, 1952

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME BEFORE TAXES
American	\$ 14,969,479	\$ 12,963,099	\$ 584,527	\$ 315,539	\$ 803,961	\$ 150,205	\$ 67,046	\$ 12,838,832	\$ 6,394,238	\$ 6,444,594	\$ 2,130,647
Braniff	1,625,291	1,456,845	68,200	27,165	42,272	12,898	• • •	1,475,383	752,726	722,657	149,908
Capital	3,245,891	2,943,463	78,633	76,564	83,330	16,145	2,212	3,167,739	1,477,586	1,690,153	78,152
Caribair	80,788	79,692	14,673	• • •	2,801	391	810	81,653	35,115	46,538	-865
C & S	1,207,298	1,094,002	54,235	23,853	23,270	11,286	• • •	1,108,665	527,924	580,741	98,633
Colonial	423,168	323,251	90,024	3,289	3,888	1,386	1,084	490,274	206,133	284,141	-67,106
Continental	880,142	698,622	104,780	6,826	17,694	5,046	35,705	805,152	417,003	388,149	74,990
Delta	2,234,619	1,990,431	84,811	36,829	74,606	25,016	1,257	1,980,676	949,996	1,030,680	253,943
Eastern	8,123,530	7,572,215	192,554	125,064	91,105	115,119	2,952	7,779,930	4,158,636	3,621,294	343,600
Hawaiian	335,513	230,637	56,581	11,102	30,916	3,761	1,219	322,404	117,577	204,827	13,109
MCA (System)*	1,116,540	756,691	322,488	11,128	14,969	6,166	2,546	916,657	435,213	481,444	199,883
National	1,901,688	1,632,175	61,001	16,516	102,562	32,597	2,700	1,767,079	781,198	985,881	134,609
Northeast	495,598	373,759	100,916	7,712	8,081	1,926	200	513,835	203,700	310,135	-18,237
Northwest	2,969,798	2,680,520	134,811	49,592	76,560	18,321	• • •	2,960,890	1,469,229	1,491,661	8,909
Trans Pacific	179,306	89,994	26,308	828	2,818	854	16,705	139,937	53,178	86,759	-631
TWA	9,219,550	8,312,592	406,832	189,770	136,498	73,006	9,273	7,481,470	3,734,380	3,747,090	1,738,080
United	11,986,974	10,111,329	728,376	283,483	380,750	95,219	137,777	9,995,919	4,732,881	5,263,038	1,991,055
Western	1,521,976	1,383,999	55,109	21,414	24,731	8,557	2,017	1,213,185	560,466	652,719	308,791
TOTALS	62,477,149	54,673,296	3,164,861	1,206,644	1,921,211	577,899	283,503	55,039,680	27,007,179	28,032,501	7,437,470

\* System figure. Company did not report financial breakdown between domestic trunk and local service (route 106) operations. Traffic figures.

† Figures include \$167,200 in estimated additional mail revenue for the first four months of 1952 on the basis of rates indicated in CAB Show Cause Order 8-6581.

NOTE: Schedules were curtailed during May because of nationwide gasoline shortage. Data are tentative and subject to later change.

## Summary of U. S. Domestic Airline Traffic for May, 1952

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON-MAILES **	EXPRESS TON-MAILES	FREIGHT TON-MAILES	TOTAL TON-MAILES	REV. TRAFFIC	AVAILABLE TON-MAILES FLOWN	% AVAILABLE TON-MAILES USED	REVENUE PLANE-MAILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
American	407,510	236,408,000	319,632,000	73.96	1,460,372	794,575	3,808,130	28,666,941	42,407,232	67.60	6,933,408	7,009,894	97.86	
Braniff	66,649	23,689,000	37,912,000	62.48	129,058	72,571	192,683	2,660,951	4,841,018	54.97	991,637	1,012,864	97.22	
Capital	163,131	51,135,000	85,249,000	59.98	147,521	180,255	295,713	5,507,482	11,129,877	49.48	1,978,413	2,020,563	96.58	
Caribair	7,608	626,000	1,280,000	50.39	994	• • • •	2,101	53,448	126,570	43.03	49,039	49,009	96.98	
C & S	48,140	17,209,000	26,556,000	64.80	67,065	65,470	98,656	1,882,355	3,244,418	58.02	789,744	789,614	99.70	
Colonial	20,010	4,988,000	11,567,000	43.12	10,848	8,239	11,198	518,519	1,227,851	42.23	336,898	344,339	97.25	
Continental	29,984	12,128,000	22,906,000	52.95	42,580	17,316	72,725	1,293,218	2,560,798	50.50	694,003	666,864	99.95	
Delta	81,163	34,729,000	56,188,000	61.81	160,020	102,224	253,545	3,953,131	6,680,674	59.17	1,526,299	1,515,115	99.95	
Eastern	296,981	135,282,000	234,515,000	57.69	472,343	297,055	488,220	14,961,458	32,342,465	46.29	4,752,354	4,754,110	98.45	
Hawaiian	26,231	3,409,000	5,805,000	58.73	2,480	10,092	77,233	375,285	699,828	53.63	270,893	216,533	94.87	
MCA*	37,252	11,344,000	20,483,000	55.38	37,782	23,234	52,566	1,200,652	2,059,294	58.30	728,104	721,079	99.66	
National	50,555	31,321,000	52,326,000	59.86	110,412	49,132	438,209	3,789,830	6,537,628	57.97	1,215,209	2,203,299	98.97	
Northeast	29,080	5,600,000	9,269,000	60.42	11,821	13,365	20,139	551,086	926,911	59.45	323,685	336,138	93.99	
Northwest	70,721	47,880,000	69,466,000	68.93	251,036	137,377	254,005	5,225,355	8,811,557	59.30	1,263,067	1,263,035	99.63	
Trans Pac.	12,255	1,495,000	3,685,000	40.57	2,208	234	4,798	123,876	322,538	38.41	131,618	133,440	99.18	
TWA	106,825	157,249,000	198,775,000	79.27	910,109	453,703	434,633	16,846,465	24,515,316	68.72	4,259,650	4,407,542	95.93	
United	270,072	184,857,000	256,040,000	72.20	1,612,429	780,799	1,788,102	21,879,137	37,662,518	58.09	5,555,502	5,508,601	99.21	
Western	67,519	25,376,000	37,912,000	66.93	103,980	50,834	89,550	2,668,034	4,041,002	66.02	1,069,260	1,070,063	99.26	
TOTALS	1,881,686	984,725,000	1,449,166,000	67.95	5,533,058	3,056,473	6,482,206	112,157,223	190,118,492	58.99	32,868,783	33,002,122	98.13	

\* Figures do not include operations of local service segment (route 106) awarded MCA by CAB in the Parks Air Lines Investigation case. Figures covering operations of route 106 are carried separately on local service airlines summary sheets. However, company combined financial information for both phases of operation during May.

\*\* Includes air parcel post.

NOTE: 1. Schedules were curtailed because of nationwide gasoline shortage during May.  
2. Figures include both scheduled and non-scheduled operations.

## Alaskan Airline Balance Sheet Data as of Dec. 31, 1951

AIRLINES	TOTAL ASSETS	CURRENT ASSETS	INVESTMENTS & SPECIAL FUNDS	OPERATING PROP. & EQUIPMENT	DEFERRED CHARGES	CURRENT LIABILITIES	LONG-TERM DEBT	DEFERRED CREDITS	OPERATING RESERVES	CAPITAL STOCK	SURPLUS
Alaska	\$ 2,425,103	\$ 1,359,281	\$ 3,792	\$ 939,507	\$ 122,523	\$ 1,540,391	\$ 163,282	\$ • • •	222,644	\$ 605,828	\$ -107,042
Alas. Coastal	480,150	190,626	899	275,935	15,691	92,592	216,000	328	50,805	107,370	13,055
Ryers	63,911	20,626	• • •	38,172	1,504	30,254	8,382	• • •	• • •	36,607	-11,333
Cordova	163,901	77,564	• • •	36,858	30,122	87,411	50,968	• • •	• • •	15,850	4,037
Ellis	401,685	125,830	• • •	251,980	• • •	71,751	71,506	• • •	• • •	64,932	193,495
N. Consol.*	1,064,713	696,478	1	310,478	31,632	808,236	72,669	10,112	• • •	357,735	-184,038
Pac. Northern	2,099,088	655,021	4,656	1,190,826	118,231	895,518	532,567	• • •	• • •	666,444	4,599
Reers	350,248	194,466	• • •	153,127	654	113,947	• • •	• • •	25,588	170,356	30,257
Wien Alaska	562,830	412,119	1,694	147,327	1,690	357,169	• • •	33,351	64,880	103,700	3,790
TOTALS	7,611,629	3,736,031	11,042	3,339,210	322,047	3,997,269	1,115,374	43,791	373,917	2,128,822	-53,180

\* Figures are preliminary.



# Summary of Alaskan Airline Revenues and Expenses for Calendar 1951

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUNDS & INDIRECT EXPENSES	NET OPERATING INCOME BEFORE INCOME TAXES
Alaska*	\$ 4,611,323	\$ 814,244	\$ 1,162,121	\$ 22,550	\$ 263,642	\$ 13,858	\$ 2,264,242	\$ 5,384,564	\$ 3,191,357	\$ 2,193,207	\$ -773,243
Alas. Coast	815,290	429,399	280,046	28,893	22,636	7,632	42,236	791,111	372,003	439,109	24,179
Ryers	61,691	19,446	24,917	.....	9,974	999	6,069	74,315	34,049	40,266	-12,624
Cordova	193,790	64,637	78,923	.....	13,015	2,224	30,472	198,454	98,870	99,584	-4,664
Ellis	582,431	322,722	146,615	41,779	.....	4,874	61,378	609,181	297,954	311,227	-26,769
N. Consol. **	1,714,070	554,578	686,822	3,829	191,494	5,863	244,160	1,727,558	843,732	883,827	-13,488
Pac. North. ***	2,342,688	1,260,252	607,049	.....	192,063	25,042	254,461	2,337,045	1,076,000	1,261,045	5,643
Reeve	625,462	314,472	230,114	.....	19,019	2,282	30,606	575,967	331,439	244,548	49,495
Wien Alaska	1,272,022	275,490	586,059	.....	119,790	6,602	252,035	1,445,389	916,244	529,145	-173,367
TOTALS	12,218,767	4,055,440	3,802,666	97,051	831,633	70,356	3,185,659	13,143,584	7,161,628	5,981,958	-924,816

\* Figures include U.S.-Alaska and intra-Alaska operations.

\*\*\* Figures include both Alaskan and overseas operations.

\*\* Figures are preliminary.

## Summary of Alaskan Airline Traffic for Calendar, 1951

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON MILES	EXPRESS TON MILES	FREIGHT TON MILES	TOTAL TON MILES	REF. TRAFFIC TON MILES	AVAILABLE TON MILES BROWN	% AVAILABLE TON MILES USED	REVENUE PLANE MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
Alaska*	36,904	10,432,000	32,385,000	32.21	281,653	33,452	922,279	2,395,102	5,113,282	46.84	2,297,791	1,906,233	88.06	
Alas. Coast	32,330	2,876,000	5,229,000	55.01	44,288	18,090	21,733	345,552	645,519	53.53	700,891	480,902	92.50	
Ryers	1,211	125,000	246,000	50.99	6,176	.....	7,794	26,963	39,104	68.95	95,318	47,208	99.82	
Cordova	5,058	441,000	1,058,000	41.73	10,622	.....	11,302	68,961	124,875	55.22	299,568	159,251	86.04	
Ellis	38,942	2,378,000	4,382,000	54.26	13,803	15,653	.....	259,440	428,448	60.55	625,134	263,605	91.53	
N. Consol.	16,959	4,496,000	11,280,000	39.86	150,766	3,778	434,435	1,062,444	1,900,928	55.88	1,115,902	793,907	91.35	
Pac. North/ Reeve	37,217	17,634,000	33,619,000	52.45	218,157	.....	991,920	2,637,606	4,586,158	57.51	1,513,099	1,098,970	96.49	
Wien Alas.	3,529	2,828,000	4,069,000	69.50	75,656	.....	39,233	423,225	581,586	72.77	389,567	305,815	100.00	
	8,540	3,019,000	5,790,000	52.15	168,855	.....	846,115	1,320,496	2,353,494	56.11	1,273,633	832,908	85.42	
TOTALS	180,690	44,229,000	98,058,000	45.10	969,976	70,973	2,874,811	8,539,589	15,773,394	54.14	6,310,863	5,088,799	90.88	
* Figures include both U.S.-Alaska and Alaska operations														
NOTE: above figures include both scheduled and non-scheduled operations.														

\* Figures include both U.S.-Alaska and intra-Alaska operations.

NOTE: Above figures include both scheduled and non-scheduled operations.

\* Figures include both Alaskan and overseas operations.

## U. S. All-Cargo Airline Operations Jan.-Mar. 1952 and Quarter Ending Mar. 31

TRAFFIC							REVENUES & EXPENSES						
AIRLINES	FREIGHT TON-MAILES	AVAILABLE TON-MAILES	% AVAILABLE TON-MAILES	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED	TOTAL OPERATING REVENUES	FREIGHT REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUNDS & INDIRECT EXPENSES	NET OPERATING INCOME BEFORE INCOME TAXES
January, 1952													
Fly. Tiger	3,030,471	3,879,660	78.11	601,486	463,684	96.80	\$ 588,216	\$ 483,766	\$ 4,915	\$ 474,351	\$ 292,354	\$ 181,997	\$ 113,865
Middle	812,569	1,062,509	77.94	185,581	145,514	100.00	130,128	117,215	.....	125,769	85,995	39,774	4,359
Stick	4,029,599	4,922,067	81.87	752,781	649,277	71.66	1,030,525	566,430	349,051	951,982	567,737	384,245	78,543
US Airlines	Figures not yet available.	.....	.....	.....	.....	.....	123,479	51,084	70,723	115,479	77,386	38,093	8,000
TOTALS	7,872,999	9,844,236	79.98	1,539,848	1,458,475	82.48	1,872,348	1,218,495	424,689	1,667,581	1,023,472	644,109	204,767
February, 1952													
Fly. Tiger	2,832,754	3,598,563	78.72	553,625	410,182	97.36	\$ 396,598	\$ 433,035	\$ 1,290	\$ 426,471	\$ 267,055	\$ 159,416	\$ -29,873
Middle	1,024,536	1,250,181	81.95	230,133	136,126	100.00	148,368	126,991	.....	136,670	89,186	47,484	11,699
Stick	3,795,825	4,727,821	80.29	726,114	716,316	87.07	994,829	553,647	312,362	963,910	528,368	435,542	30,919
US Airlines	Figures not yet available.	.....	.....	.....	.....	.....	127,792	66,420	58,591	119,135	83,053	36,082	8,657
TOTALS	7,653,115	9,576,565	79.91	1,509,872	1,262,624	91.80	1,667,587	1,180,093	372,243	1,646,186	967,662	678,524	21,402
March, 1952													
Fly. Tiger	2,870,465	3,572,739	80.36	549,652	463,684	95.42	Under CAB regulations the airlines are not required to file a report of revenue and expenses for the month of March, but instead file a statement for the quarter ending March.						
Middle	957,063	1,204,409	79.46	210,407	145,514	100.00							
Stick	3,846,020	4,843,123	79.41	742,779	800,784	79.44							
US Airlines	Figures not yet available.	.....	.....	.....	.....	.....							
TOTALS	7,674,028	9,620,271	79.77	1,502,838	1,409,982	89.41							
Quarter Ending March 31, 1952													
Fly. Tiger*	8,734,170	11,050,962	79.03	1,704,763	1,337,550	96.50	\$ 903,210	\$ 1,355,031	\$ 14,810	\$ 1,303,922	\$ 819,729	\$ 484,193	\$ -400,712
Middle	2,794,168	3,497,099	79.90	626,121	427,514	100.00	455,368	426,588	.....	421,899	283,057	138,822	33,469
Stick	11,671,404	14,493,011	80.53	2,221,674	2,366,377	76.93	2,086,920	1,636,224	46,714	2,063,187	1,157,690	905,507	23,733
US Airlines	Figures not yet available.	.....	.....	.....	.....	.....	390,892	174,468	212,058	357,848	252,560	105,288	37,044
TOTALS	23,199,742	29,041,072	79.88	4,552,558	4,131,081	85.65	3,836,390	3,592,311	273,582	4,146,856	2,513,026	1,633,830	-310,466
* Flying Tiger Line's financial figures for the quarter ending March 31, 1952 are preliminary.													
NOTE: Traffic figures are exclusive of defense contract operations. However, financial figures, i.e., total operating revenues and net operating income, reflect the net result of defense contract operations. This net figure is reported under Incidental Revenues.													

\* Flying Tiger Line's financial figures for the quarter ending March 31, 1952 are preliminary.

NOTE: Traffic figures are exclusive of defense contract operations. However, financial figures, i.e., total operating revenues and net operating income, reflect the net result of defense contract operations. This net figure is reported under incidental revenues.



## SHELL AIR QUIZ

### *Question:*

What rare tropical flower owes its recent spurt in sales to swift air transportation?

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Daily flights from Hawaii have now enabled low-cost orchids to be as accessible to American women as their neighborhood florist.

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## Production Spotlight



**Lockheed T-33** jet trainers shown above broke all existing world utilization records during a 31-day test, from July 1 through 31, when they flew more than 400 hours.

### IAM Gets Raise, New Benefits at Boeing

A new contract signed by Boeing Airplane Co.'s Seattle plant and the International Association of Machinists-AFL, the first major Machinist pact on the West Coast this year, calls for a \$2.40 an hour top rate and may influence other IAM negotiations.

The Machinists' agreements with Lockheed Aircraft at Burbank and Marietta, Ga., expire August 22 as does Douglas Aircraft's pact at El Segundo. Douglas' Santa Monica contract with the IAM ends October 16 and so does the one at Consolidated Vultee-San Diego.

In addition to the five cent an hour across the board wage boost, the Machinists won a liberal health and welfare package plan, providing medical, surgical and hospitalization coverage, \$31.50 weekly while the worker is ill and \$5,900 in life insurance.

The Machinists, incidentally, has started a battle to gain for its locals a voice in the placement of sub-contracts—something which heretofore has been strictly a responsibility of management.

Roy Brown, IAM vice president, claims some aircraft companies have placed their sub-contracts with other plants which either are not unionized or have weak unions even though they could handle the work themselves. He claims they have been farming them out to escape their responsibilities.

Similar conditions are already in effect in many airline agreements and the IAM has won a say in sub-contract placement at the National Electrical Products Co. in Torrance, Calif. The National Electrical contract leaves the ultimate decision up to the company but provides for consultation with the local beforehand.

### USAF Picks Production Sites for Jets

USAF has finally decided on the production locations for the Douglas RB-66 and the North American F-86H. The land-based reconnaissance version of the Navy twin-jet A3D will be constructed at Long Beach, Calif., although some consideration had earlier been given to having it built at the Chicago plant which Douglas operated during the war. Fairchild was to have built G-119's at Chicago but this idea was washed out during the stretchout.

North American Aviation's latest Sabre is to go into production late this year at the NAA plant in Columbus, where the Navy FJ-2 Fury and AJ-2 Savage are in production.

The H had originally been slated for construction at NAA's Los Angeles plant and the first two models will still be produced there. First F-86H will fly early this fall.

Newest of the Sabrejets, the H will be slightly larger than its four

production predecessors and will use the more powerful General Electric J-47-GE-29 power plant. The F-86F, now being turned out both in the Ohio and California factories, will be built solely at Los Angeles when H production phases in at Columbus. The F-86D all-weather interceptor is also being built at Los Angeles.

### Wages, Hours Drop as Result of Stretchout

The stretchout in the aircraft program resulted in an average work week of 41.8 hours in the aircraft and parts industry during April, the Labor Department says, the lowest number of hours worked by the industry since the Korean war began. Work week has been dropping steadily since the stretchout was ordered in January, declining to 43.2 in February and 43.0 in March.

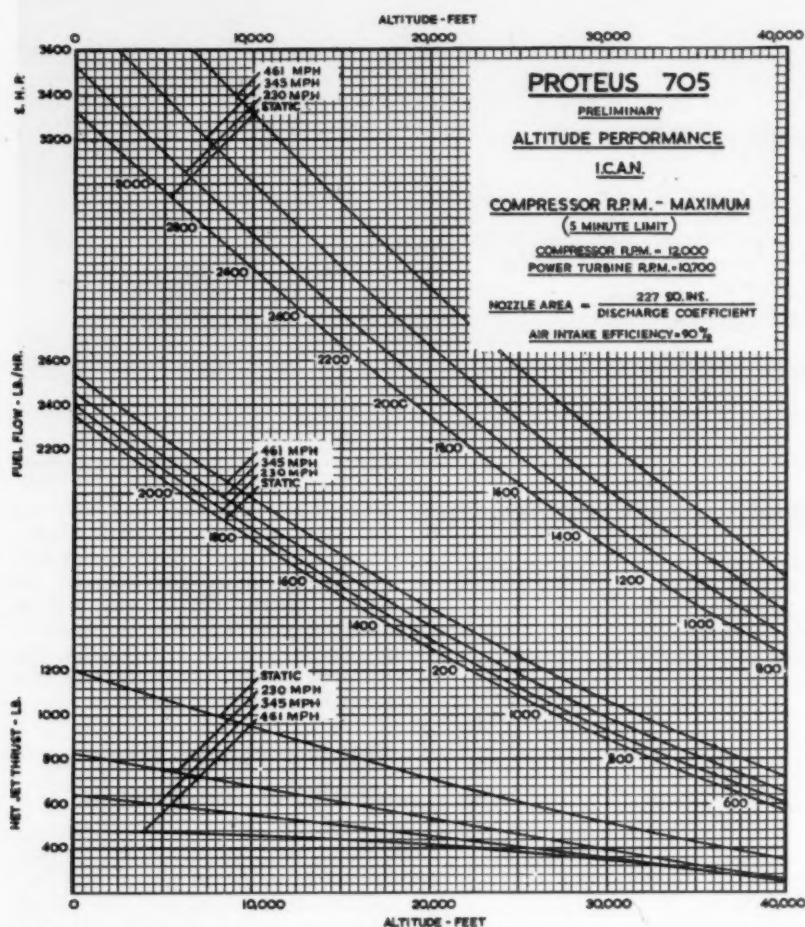
Wages dropped at the same time. Average industry earnings, which stood at \$80.01 in February and \$80.58 in March, slumped to \$77.46 in April. One main reason for the March increase was the fact that hourly earnings, \$1.852 in February, rose to \$1.874 that month before dropping back to \$1.853 in April.

### First Engine Finished

The Chevrolet Aviation Engine Division, Tonawanda, N. Y., has turned out its first production power plant since World War II—a Wright R-3350-26W engine for the Douglas AD Skyraider. A larger engine is scheduled to go into production there in November.



# Around the World



## Full Proteus Engine Details Released

News that the Bristol Britannia turboprop transport will fly soon is heightening interest in the Proteus 705 engine, the unit which will power Britain's latest airliner. Further increasing this interest is the fact that the Bristol Aeroplane Company has just released full details of the new Proteus III (700 series).

The Proteus has been designed specifically for economical operation on trunk airways, for aircraft flying at 300 to 400 mph at 30,000 to 40,000 feet. At sea level static conditions the Proteus III (700 series) develops 3,320 shaft hp, plus 1,200 pounds jet thrust (3,780 chp); 1,335 shaft hp, plus 300 pounds thrust (1,680 chp) at 350 mph and 35,000 feet, with specific consumption of

0.62 lb./chp/hour at sea level, improving to 0.48 lb./chp/hour at the flight conditions quoted above.

During calibration of the engine, both on the dynamometer and with its propeller on the hangar, the following figures were obtained using a 20-inch final exhaust nozzle:

Compressor rpm	bph	Jet Thrust (pounds)
11,000	2,630	620
11,500	3,350	770
12,000	4,100	920
Specific Consumption (lb./bph/hour)	Specific Consumption (lb./chp/hour)	Jet Pipe Temperature (°C)
0.67	0.62	430
0.62	0.58	455
0.59	0.55	485

The Proteus III (770 series) has reduced overall length (100.5 inches) and weight (2,650 pounds) compared with earlier series. The centrifugal impeller has been relocated immediately following the last stage of the axial compressor. The single-power-stage turbine of the 600 series has been replaced in the 700 series by a two-stage unit, making four stages in all.

## Italians Buy DC-6B's; Get U. S. Govt. Loan

Linee Aeree Italiane, Italian associate of TWA, has ordered three Douglas DC-6B's for delivery in early 1954. They will supplement LAI's present four-engine fleet of two DC-6's.

The Export-Import Bank of Washington has authorized a \$3,540,000 loan to the other Italian flag carrier, Alitalia, to help finance that company's \$6,294,000 order for four DC-6B's and spares. Douglas Aircraft Co. has received a down payment of \$1,573,500 and will carry the balance of \$1,180,500. The Italian government's IMI financing agency is handling the deal for Alitalia. The Export-Import Bank loan is repayable in five years from 1954 in semi-annual installments and carries 3½% interest.

All-Italian capitalization for the two Italian airlines is urged by the government's civil aviation committee as one of a series of recommendations to improve the lot of civil aviation in Italy. If this plan were to be adopted, TWA and British European Airways would have to sell out their respective interests in LAI and Alitalia. The committee wants the companies put on a sound footing by the provision of good mail pay for trunk routes and subsidies for uneconomic "national interest" services.

## Japan Orders Herons

In addition to two Comet II's, Japan Air Lines has ordered three Heron four-engine feeder transports from the de Havilland Aircraft Co. Four twin-engine Doves have also been sold to Japanese customers—three to an unspecified company for local charter work and the fourth to a newspaper.

Another order recently booked by de Havilland is two Herons for Australia's Butler Air Transport. This brings total Heron orders to 28 aircraft.



## New Spanish Medium Transport on Market

An unexpected offering from the Spanish aircraft industry is Construcciones Aeronauticas' CASA 208, a transport in the Fairchild C-119 or Nord 2501 class. This is the most ambitious plane yet designed on the Iberian peninsula and it follows announcement by the same manufacturer of a twin-engine project likened to the Convair 240; a model of the latter aircraft has been undergoing wind-tunnel tests. Construcciones Aeronauticas recently started test flying the prototype of another, smaller transport, the CASA 201.

The all-metal CASA 208 is designed to be powered by two 1,700-hp Bristol Hercules 738's, but Pratt and Whitney engines could also be used. It has a span of 102 feet and is 50 feet long. Height is 19 feet and wing area is 1,090 square feet. The CASA 208 has a maximum speed of 255 mph, cruises at 200 mph and lands at 87 mph. Ceiling is 27,000 feet. Seven versions are projected including two commercial passenger models.

## Australians Blaze Indian Ocean Route

Conquest of the last great ocean—the Indian Ocean—by commercial air transportation will be achieved in September when Qantas Empire Airways inaugurates a 8,500-mile service from Sydney to Johannesburg via Perth, Cocos, and Mauritius.

Key to this strategic route is the pear-shaped coral atoll known as the Cocos Islands. By the end of the war the Royal Air Force had built a 7,500-foot strip of perforated steel planking on the West Cocos Island. When the Australians started surveying the new route last year they found the strip and the 47 buildings in fair condition despite five years of neglect and exposure. Most important, the 700,000-gallon fuel tanks were in good shape.

Early this year Qantas started flying in construction parties and supplies in Avro Lancastrians and Douglas DC-3's to rehabilitate existing facilities and build an 8,000-foot-long 150-foot-wide runway of crushed coral capable of handling Lockheed Super Constellation and Boeing Stratocruiser aircraft with ease.

Qantas made a proving flight over the new trans-oceanic route last month and is now all set for inauguration of scheduled fortnightly services. The longest leg will be between Cocos and Mauritius—2,677 miles.

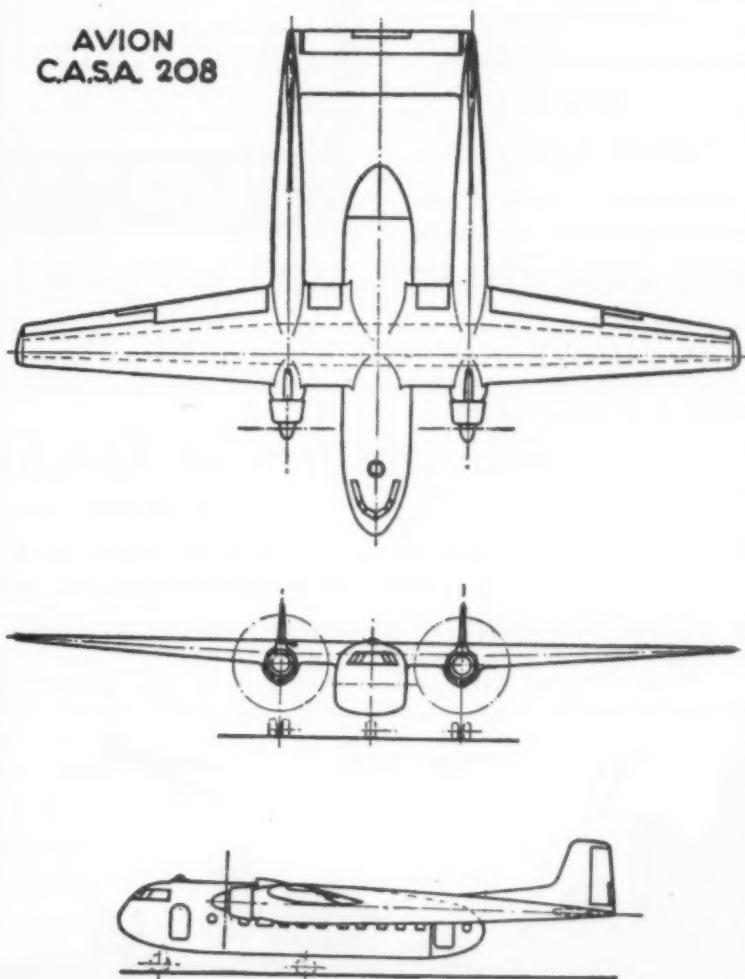
## PERFORMANCE DATA ON CASA 208

		40	54	58	42
		passengers	passengers	military personnel	paratroopers
Empty weight	(pounds)	23,630	23,640	22,800	22,760
Crew	"	680	680	530	530
Fuel and oil	"	8,000	5,580	4,820	7,030
Useful load	"	8,690	11,200	12,910	10,710
Gross weight	"	41,000	41,000	41,000	41,000
Range (miles)	"	1,600	1,140	990	1,450

### Ambulance Versions

		28 sitting patients	27 sitting patients	Military Cargo
		16 litter patients	24 litter patients	three fully loaded jeeps
Empty weight	(pounds)	22,090	22,070	21,960
Crew	"	530	530	530
Fuel and oil	"	8,000	8,000	4,320
Useful load	"	7,010	7,080	14,080
Gross weight	"	38,140	38,180	41,010
Range	(miles)	1,600	1,600	900

AVION  
CASA 208





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## Annual Airworthiness Review Meeting Held

The Civil Aeronautics Board's annual review of airworthiness regulations began its two-week session on August 4 with more than 50 representatives of all branches of aviation in attendance. Principal subjects discussed on opening day or scheduled later in review included:

- **Revised cockpit standardization requirements.** Agreements reached between the Munitions Board and the airline industry through the SAE will be reflected in a revision to CAR Part 4b.

- **Rear-facing seats** will not become a requirement on future aircraft this year. Industry objections based upon lack of factual data proving them safer were recognized, and CAB will not reopen subject for future discussion until facts gained from additional research will conclusively indicate whether they should be required.

CAA proposals to provide for additional occupant safety brought agreement on a minor change in the wording of present regulations in lieu of the proposal. Specifically mentioned was the shattering of plexiglas partitions, such as used in the Douglas DC-6, in a recent crash. Subject was sidetracked by the recognized need for additional information on explosive decompression.

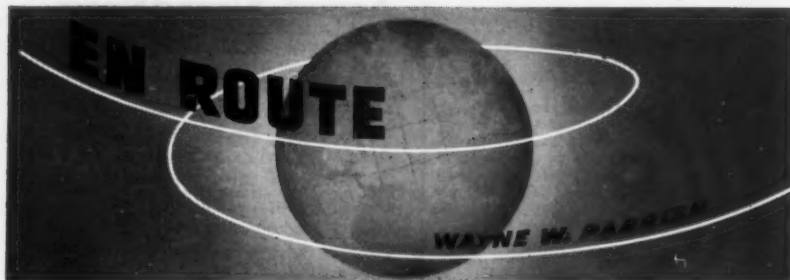
Demonstrated crosswind minimum values were slated for reconsideration in view of preferential runway program according to CAA. Recent report of "Doolittle" commission recommended that existing crosswind component limitations be reviewed to establish more liberal specifications for each type of transport aircraft.

Additional power plant fire protection was to be proposed by CAA in the form of engine power section (zone 1) fire extinguishers and nacelle skin fireproofing. Under suggested rules new design aircraft would require both features and those manufactured after January 1, 1953, would need one or the other.

Retroactive application of this thinking to existing aircraft resulted in the issuance of an airworthiness directive earlier this year requiring modification of Convair 240 nacelles.

Although primary objective of the Air Line Pilots' Association was to obtain temperature and humidity accountability in take-off and climb performance, considerable stress was placed on requirements for higher intensity flashing lights and increased flashing rates, anticollision lights, ditching survival equipment for all transports, and engine power indicating instruments (BMEP indicators).





**Nap Slept There.** The average French hotel is a wonderful institution. It was built from fifty to three hundred years ago. There is a squeak in every floorboard. Modern plumbing was a distinct afterthought. Napoleon slept there. A bathtub is a luxury for which you pay extra. The W. C. (water closet) is down the hall. The beds are clean and usually comfortable. The rest of the furniture is battered and ancient.

I'm not discussing the big hotels of Paris and the Riviera and other resort spots. I'm referring to the average hotel one finds in other towns. Most French hotels are small, from twenty to sixty rooms. Most are run by families. The service is usually very good.

Prices are not as cheap as they were a few years ago, but if you shop around you can get a double room and breakfast for \$3.50 to \$4.00 and not be slumming. If you insist on a room with a complete bathroom, you'll pay much more—providing the hotel has one or two rooms so equipped.

\*\*\*

**Indoor Plumbing.** The French have their own idea of what plumbing is important for a bedroom. First comes running water. In all places we found hot water as well as cold, although you had to let the "hot" water run for five or ten minutes sometimes before the hot water arrived from a boiler situated far back of the hotel.

Next in importance is a *bidet* (pronounced *beeday*). The bidet has been the subject of a great deal of conversation by Americans because this useful little bit of plumbing is found only in Europe and South America. The American male, on first finding a bidet in his hotel bathroom, immediately begins to experiment, and more than one has had a powerful stream of water squirted in his face as he endeavored to find out what the gadget was all about. More than once a bidet has been taken for a footbath. It stands about 18 inches off the floor and is made of standard water-closet ceramic.

**All About Bidets.** I've had bidets in a great many bathrooms in hotels abroad and always assumed they were solely for the use of the feminine sex. But on this motor trip in May my wife and I did without the luxury of bathtubs in many hotels and I found the bidet to be very useful for a partial bath. In fact we decided that we would install a bidet in the new house we're planning to build.

And now along comes *House Beautiful* in its August issue and starts a crusade for the installation of a bidet

in every American home. Not a bad idea. I had been wondering how I would explain the bidet to you readers, but *House Beautiful* does it very neatly, as follows:

\*\*\*

**Instructions.** "The user sits astride the bowl, facing hot and cold water faucets which regulate water temperature and a third control for a pop-up drain. Water enters the bidet via a controlled stream from the depths of the bowl. Additional water is supplied by way of a flushing rim which serves to clean the bowl thoroughly.

"In Europe, the majority of women, and indeed many men, have the daily morning habit of the partial bath using



LA BIDET

the bidet. Many are most careful to use it after each act of urination, defecation, or intercourse—Our failure to accept the bidet probably stems from our pride in the daily bath or shower. But the bidet lets us pay special attention to the private hygiene of the pelvic area oftener than once a day."

\*\*\*

**Baths Come High.** As I say, the French put a bidet as No. 2 priority for a hotel room. Next in importance comes a bathtub, which is usually in a separate room and which you can have for your exclusive use at extra cost unless other patrons have reserved time for baths. (Bathing costs extra in France any way you figure it).

Fourth in importance is the W. C. and the French can't understand why any individual needs a W. C. for his own exclusive use. So unless you are lucky you won't find a room with its own water closet, and you'll have to patter down the hall and wait your turn. Incidentally, I found almost all French hotels quite clean, and this includes the W. C.

According to an official survey, only

27% of French farmers have inside plumbing. In the southwest of France only 51% of homes have plumbing. So it is not to be expected that a room-and-bath would be found in the average French hotel.

**Honeymoon Suite.** My wife and I won't soon forget the Hotel des Voyageurs at Villeneuve de Marsan, in southwestern France, where we found those hatching birds served for dinner. It seems that the hotel had just opened a new addition and was very proud of it. My wife went to dicker for a room and the manager, noting that she was an American, wanted to rent us the prize room of the hotel. I didn't see it but my wife said it was an amazing sight. It was truly plush. There was a very large bedroom with fancy covers on the beds, and fancy drapes, and then there was a tiled bathroom which was as big as an ordinary living room.

This bathroom had a wash basin, a big bathtub, a bidet, and then in the corner was an enclosure completely tiled and reached by about three steps. Inside was a water closet. Tiling even on the ceiling. It was truly a throne. As it turned out, this was the honeymoon suite, apparently had never been rented to anyone yet, and was the only room with its own water closet.

\*\*\*

**The Elusive W.C.** The price being too high, and we not being on a honeymoon after 17 years of marriage, my wife asked to see other rooms. We got the second choice room. It had a handsome bathroom containing a shower (but no enclosure, so the water splashed everywhere), it had a wash basin, and it had a bidet. But the only water closets in the hotel, except for the honeymoon suite, were on the main floor. They were not only for the hotel patrons but for everybody in town who stopped in for a drink or food. For half the price of the fine tiling, a W. C. could have been added to our room.

The payoff was that the hotel had glossy photographs of the public toilets, and of the throned water closet in the honeymoon suite, plastered all over the hotel as advertisements. Under the glass on every table in the combination lobby and bar were these photos. I had breakfast next morning with a photo of a water closet staring me in the face. Adding flush toilets to the hotel was a great achievement and a matter of civic pride in the town of Villeneuve de Marsan.

And incidentally, the toilets were an odd combination. There were two compartments for ladies and two for men and as you know the French are pretty informal about these things, so the amount of privacy was a relatively small matter. But there were only two standard flush toilets, the kind you sit on, one for the ladies and one for men. The other two were of the platform type which are to be found in southern France, the Middle East, India, and the Far East. It is difficult to describe the platform type except to say that they are a poor substitute for ducking into the woods. But the Hotel des Voyageurs is prepared for whatever the customer is used to.



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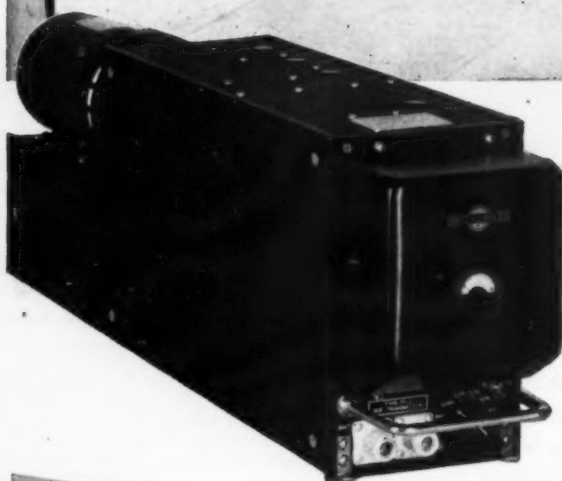


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# News At Deadline

## BOAC Will Fly Comet II's On Atlantic Runs

British Overseas Airways Corp. will use its de Havilland Comet II's to fly the Atlantic system routes now operated with Boeing Stratocruisers, contrary to previous hints that, initially, Comet I's would be based at New York for "showcase" operation to Bermuda and Nassau.

The latter project has now been deferred, and when BOAC starts jet operations it is expected to be as part of the complete trans-Atlantic program.

## IATA Group to Urge Pacific Coach Fares

Next year may see air tourist service from the U. S. and Canada to Hong Kong, Manila, and Tokyo if the recommendations of a special committee of IATA are followed. Fare levels to be recommended to the IATA traffic conference when it meets in Nice, France, in October will be approximately 30% below present first-class fares.

There was sharp disagreement on several points between the airlines represented on the committee, among which were British Commonwealth Pacific Airlines, British Overseas Airways Corp., Canadian Pacific Airlines, Northwest Airlines, Pan American, Philippine Air Lines, Qantas Empire Airways, and United.

With Pan Am urging early adoption of the service and Northwest the leading opponent of the idea, arguments moved back and forth over the following ground: should the service start in April, 1953, or be delayed until the following year; which cities should be served, particularly at the beginning; should one or two classes of services be provided on a single plane.

## No Immediate Hope for Civil C-97F Sales

Boeing Airplane Company has been discussing the commercial possibilities of the C-97F with a number of airlines, but at this time there is not sufficient interest to offer any immediate prospects of an order.

Northwest Airlines, Pan American World Airways, British Overseas Airways Corporation, Slick Airways and The Flying Tiger Line were reported by a trade magazine to be "interested" in such sales.

However, Pan Am and BOAC both report no interest in the C-97F as commercial equipment. The Flying Tiger Line states that it is committed to the Douglas DC-6 "To the extent of our purchasing power." Northwest claims its interest "is part of a new equipment review of general nature only." Slick reports that it is naturally interested in any aircraft being developed for freight but that its "concern now is only the cost of operating and performance" of the C-97F. United states that it "has no interest at the present time in additional Boeing C-97 equipment."

Boeing is investigating the requirements of certification work upon receipt of any firm orders.

## PO Wants Freedom to Contact With Non-Skeds

The Post Office Department feels that it should be able to use non-scheduled airlines as contract carriers if need be, although it opposes the idea of granting certificates to such lines for the carriage of mail.

The Post Office attitude was revealed in an exhibit filed in CAB's Large Irregular Air Carrier Investigation. Statements were publicized by the Aircoach Transport Association, trade group for the non-scheduled lines, recalling an offer made last May by those operators, in which they offered to carry mail at rates 50% lower than present ones.

## Cleveland Dies in Crash

E. W. (Pop) Cleveland, vice-president of Cleveland Pneumatic Tool Co., Cleveland, was killed when his light plane crashed into a mountain in a fog while he was flying from Spokane to Seattle on August 7. His wife, Lucile, and his secretary, Mrs. Annabelle Elmslie, were killed with him. Cleveland, 62, was one of the nation's oldest flyers, and was honored a year ago on his 40th anniversary in flying.

## UAL Hawaiian Rate Set

United Air Lines' Hawaiian operations have been designated as a "stub-end" segment of the carrier's domestic operations, and the compensatory mail pay on that route will be 45 cents per ton-mile, matching the domestic rate. The CAB proposal to this effect was designed to be effective as of August 7.

## Runway Study Reveals Design Changes Needed

Results of a two-year survey by CAA's Office of Airports indicate the need for changes to rigid and flexible pavement design requirements now contained in its 1948 publication titled "Airport Paving."

Rigid pavement changes include reduction of taxiway requirements to six inches for 15,000-pound wheel loadings and 15 inches for 100,000-pound loadings.

Flexible pavement changes concern reduction in sub-base thickness requirements ranging from one to three inches and reduction in base course thickness for taxiways, aprons, and runway ends from one inch at 15,000 pound loadings to zero at 45,000 pounds.

## Capital-United Merger Talks Fall Through

Merger talks between Capital Airlines and United Air Lines have come to nothing, according to Capital's president, J. H. Carmichael. "In all probability," Carmichael added in a three-page memo to employees, "there will be further exploratory conversations between Capital and other carriers."

He assured employees that Capital could continue to exist as an independent organization, and that the company would not merge "unless and provided Capital . . . would be substantially benefited."

Carmichael noted that "as a matter of managerial responsibility" preliminary talks had been conducted with TWA, American, and Eastern Air Lines.

## Transocean Exemption

Transocean Air Lines has been granted an exemption by CAB similar to that recently granted Seaboard & Western authorizing extensive trans-Atlantic cargo operations. Award is for three years and provides an interim arrangement under which operations, chiefly those on behalf of the Government, may be continued during CAB's re-trial of trans-Atlantic cargo certificate applications.



## Leased USAF C-46's Will Not Be Recalled

The C-46's leased from the Air Force will remain with their civil operators in case of national emergency, according to Ray Ireland, administrator of the Defense Air Transport Administration. When the plan for a Civil Reserve Air Fleet was set up in March, the Air Force stated that its policy would be to recall such leased aircraft. The policy about-face was announced in a letter from Lt. Gen. Lawrence S. Kuter, acting USAF Vice Chief of Staff, in response to a DATA request that the policy be reconsidered.

## First Foreign All-Cargo Certificate Granted

The first foreign certificate for all-cargo service has been granted to Aerovias Sud Americana by the CAB. Aerovias Sud, a large irregular carrier based at St. Petersburg, Fla., was certificated to operate scheduled all-cargo services for five years between Tampa-St. Petersburg, Florida, and Bogota, Colombia, via Havana, Merida, Belize, Guatemala City, San Salvador, and Balboa.

Approved by President Truman, the award was voted 3-2 by the CAB, with Oswald Ryan and Chan Gurney dissenting.

Decision was at the same time deferred on a Latin American all-cargo application of Skytrain Airways, Inc., pending further hearings on Skytrain's "fitness, willingness, and ability to operate the route for which it applied." Skytrain had proposed routes out of New Orleans to Central and South American points.

## Behncke Ignores Ouster; Contempt Charge Likely

The Air Line Pilots Association struggle is in a more confused state than ever. On July 31 the U. S. Circuit Court of Appeals in Illinois ordered David L. Behncke removed as president of the association, pending a hearing on an appeal filed by the Sayen faction. The ruling, handed down by Judge Walter C. Lindley, in effect, supersedes the decision made by U. S. District Court Judge Walter J. LaBuy, who had ruled Behncke as "legal" president prior to the appeal.

Behncke, following the new ruling barricaded himself in the headquarters building in Chicago and hired private detective agency personnel as guards. The Clarence N. Sayen group's attorneys are seeking a contempt citation against Behncke on the grounds that

he has refused to recognize the Circuit Court of Appeals order re-ousting him.

U. S. Circuit Court of Appeals Judge Walter C. Lindley at Danville Ill., set August 15 as a date for Behncke's attorneys to show why he should not be held in contempt, and put the entire case on the court calendar for September 8.

In the meantime secession plans are still being discussed. Following the Circuit Court stay, a meeting of the Air Transport Pilots Association, a new union recently formed by dissident ALPA members, was called to determine the next move.

## Comet 1A Improvements Revealed by CPA

The main differences between the Comet 1 and the Comet 1A have been revealed by Canadian Pacific Airlines, which will use the 1A's between Honolulu and Sydney, Australia.

Although de Havilland is still silent on the changes, CPAL reports that use of water-injection Ghost gas turbines will improve fuel utilization, and will enable gross weight to be boosted from 110,000 to 115,000 pounds. Fuel capacity will be increased from 6,000 to 7,000 gallons.

The 1A consequently approaches the performance of the Avon-powered Comet II, with the additional advantage of being available much more quickly.

## Non-Sked Asks Stay In Revocation Case

Air Transport Associates, a non-scheduled airline operated by Amos E. Heacock, has petitioned the U. S. Court of Appeals for the District of Columbia Circuit to defer further steps in the CAB revocation case against the line until a Supreme Court ruling is made in the so-called "Three and Eight" case. That case, dealing with CAB's proposal to specify the number of flights that may be flown by non-scheduled lines, was submitted to the Supreme Court several months ago after the Appeals Court could not agree on a decision.

## NATCC Offers 4 Points For Noise Reduction

In order to reduce noise annoyance to Long Island residents, the National Air Transport Coordinating Committee has set down four procedures to be followed by operators shuttling aircraft between LaGuardia and International Airports.

The suggestions, prompted by reports received at NATCC's New York complaint Center, are as follows:

- **Attain a cruising altitude** not less than 1,200 feet, weather permitting, as rapidly as possible after leaving either airport.

- **Maintaining cruising altitude** of not less than 1,200 feet as long as possible before commencing descent to the destination airport.

- **Utilize techniques** to eliminate aircraft noises to the maximum extent consistent with safety.

- **Make approaches and turns** over water and open areas wherever possible.

## US-Japan Bilateral Agreement Reached

The bilateral air transport agreement arrived at by negotiators of the U. S. and Japan in Tokyo last month is the standard Bermuda-type agreement, calls for two basic routes between the countries, and becomes effective after approval by the Japanese Diet. Approval is anticipated "sometime in September."

Agreement was reached after 4½ weeks of negotiations in the Japanese capital. Routes called for are (1) from Japan via the northern route across the Pacific through Canada to Seattle, generally the same as that now operated by Northwest Airlines, and (2) from Japan via the central Pacific territories of the U. S., through Honolulu to California "and beyond."

## British Award 40 Disputed Planes to CAT

The three-year dispute over possession of 40 Chinese transports grounded in Hong Kong has been settled with the British Privy Council awarding the \$3,000,000 worth of equipment to Maj. Gen. Claire L. Chennault's Delaware-registered Civil Air Transport.

The Council's action reversed the ruling of the Hong Kong Supreme Court, which felt that the planes belonged to the Chinese Communist government. The planes had been seized from CAT by the Communists when they drove the Chinese Nationalists from the mainland.

Another group of Chinese transports, which CAT claims to have bought in 1949, also are under dispute, with the Chief Justice of Hong Kong reserving judgment.



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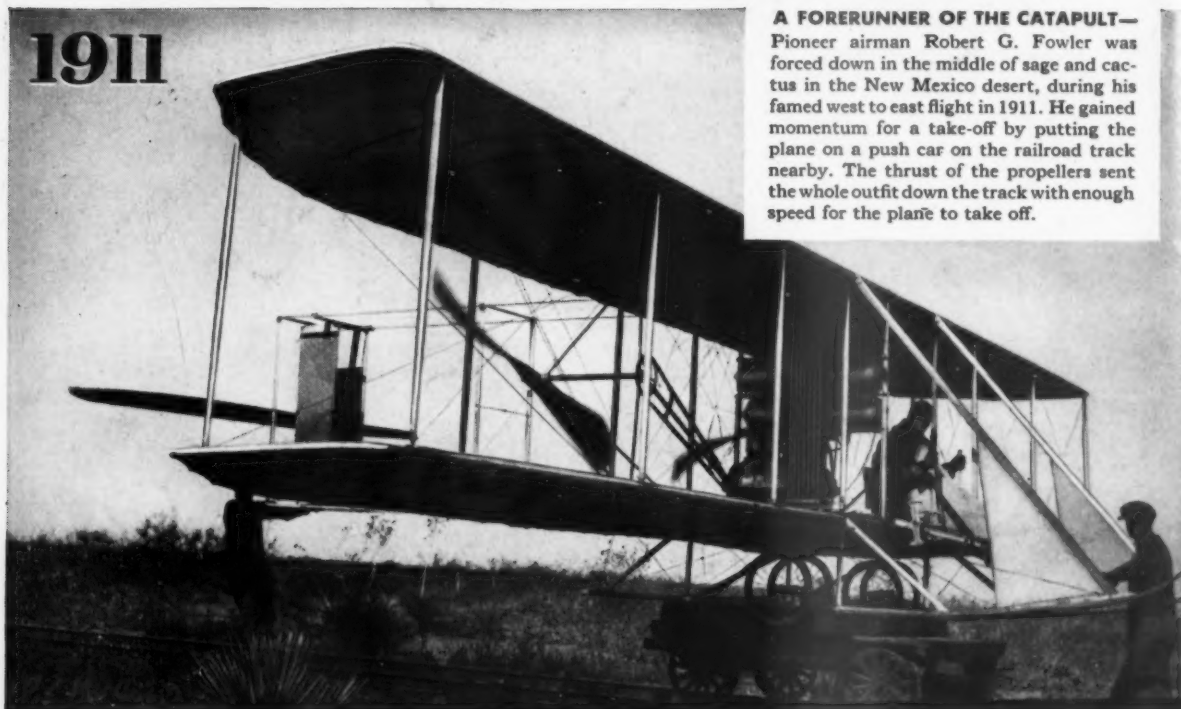
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**Bendix**  
AVIATION CORPORATION

# West-East Pioneer....

1911



## A FORERUNNER OF THE CATAPULT—

Pioneer airman Robert G. Fowler was forced down in the middle of sage and cactus in the New Mexico desert, during his famed west to east flight in 1911. He gained momentum for a take-off by putting the plane on a push car on the railroad track nearby. The thrust of the propellers sent the whole outfit down the track with enough speed for the plane to take off.

● Pioneer pilot Robert G. Fowler's railroad push car take-off foreshadowed in part the development of modern catapults used on our Navy's carriers. Another example of how necessity has served as the mother of invention.

So, in the field of aviation products, Phillips Petroleum Company has kept pace with the need for higher octane gasoline and dependable lubricants. A pioneer in the field of special aviation gasolines, Phillips is today one of the country's largest suppliers . . . for commercial and military as well as private use. Phillips stands ready with new fuels for turbo-props and jets, in addition to its tremendous capacity for producing 115/145 grade aviation gasoline.

For reliable aviation products call Phillips.

AVIATION DIVISION  
PHILLIPS PETROLEUM COMPANY  
BARTLESVILLE, OKLAHOMA

1952



**MODERN CATAPULTS** on our Navy's aircraft carriers are hydraulically and pneumatically driven. An accelerating stroke of 97 feet and a brake stroke of about 27 feet make the catapult about 124 feet long. The actual machinery is located well below deck with a cable arrangement up to the flight deck. Above a Chance Vought F7U Cutlass leaves the flight deck after being catapulted from the port side catapult.



## AVIATION PRODUCTS